HIGH FREQUENCY INCISION DEVICE FOR ENDOSCOPE

Publication number: JP9206309 (A)
Publication date: 1997-08-12
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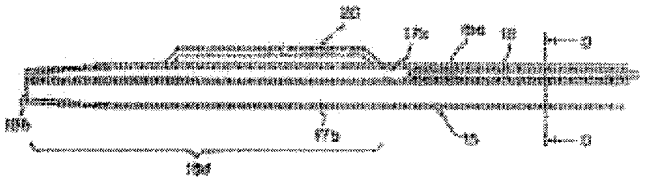
Classification:
- international: ***A61B17/00; A61B1/00; A61B18/12; A61B18/14; A61M25/09;*** *A61B17/22;* **A61B17/00; A61B1/00; A61B18/12; A61B18/14; A61M25/09;** A61B17/22; (IPC1-7): A61B17/39; A61B1/00; A61B17/00
- European: A61B18/14D
Application number: JP19960018926 19960205
Priority number(s): JP19960018926 19960205

Also published as:
JP3086166 (B2)
DE19703860 (A1)
DE19703860 (C2)
US6017339 (A)

Abstract of **JP 9206309 (A)**

PROBLEM TO BE SOLVED: To provide a high frequency incision device for an endoscope which can be inserted into a channel or a human body more easily and can be used effectively. SOLUTION: A wire lumen, a multi-purpose lumen 17b, and a reinforcing lumen 17c are formed in a sheath 15 which can be inserted into a channel for a treatment tool of an endoscope. An electroconductive wire for incision treatment can be inserted into the wire lumen. The multi-purpose lumen 17b is used for insertion of a guide wire or injection of liquid, etc., and a reinforcing wire 18 is inserted into the reinforcing lumen 17c to reinforce the sheath 15 which is too soft. The reinforcing wire 18 is inserted from the base end of the sheath through just in front of the base edge of the top end 15d of the sheath.; With this reinforcing wire 18, the device can be inserted into a channel for a treatment tool, etc., more easily, and the incision treatment using a knife part 20 can be conduced more easily because the top 15d of the sheath remains soft enough.



(19)日本国特許庁（ＪＰ）　(12)**公開特許公報**（Ａ）　(11)特許出願公開番号

特開平9－206309

(43)公開日　平成９年(1997)８月12日

(51)Int.Cl.[6]	識別記号	庁内整理番号	ＦＩ		技術表示箇所
Ａ６１Ｂ　17/39			Ａ６１Ｂ　17/39		
1/00	３３４		1/00	３３４Ｄ	
17/00	３２０		17/00	３２０	

審査請求　未請求　請求項の数２　ＯＬ　（全 17 頁）

(21)出願番号　特願平8－18926

(22)出願日　平成８年(1996)２月５日

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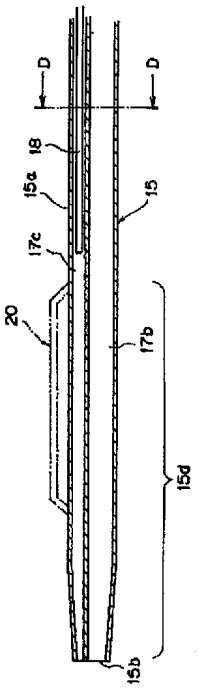
(54)【発明の名称】　内視鏡用高周波切開装置

(57)【要約】

【課題】　チャンネル又は、生体内への挿入性を向上でき、かつ作動性が良い内視鏡用高周波切開装置を提供する。

【解決手段】　内視鏡の処置具挿通チャンネル内に挿通可能なシース１５には切開処置を行うための導電性ワイヤが挿通されるワイヤルーメンと、ガイドワイヤ及び／又は液体の注入等に使用される多目的ルーメン１７ｂと、シース１５の柔らかすぎるのを補強するための補強ワイヤ１８が挿通される補強ルーメン１７ｃとが形成されている。補強ワイヤ１８はシース基端部からシース先端部１５ｄの基端のすぐ手前まで挿通され、この補強ワイヤ１８により処置具挿通チャンネル内等に挿通する場合の挿入性を向上し、かつシース先端部１５ｄは十分に柔らかくしてナイフ部２０による切開処置を行い易くしている。



【特許請求の範囲】

【請求項１】　内視鏡の処置具挿通チャンネル内を挿通可能な電気絶縁性シースのシース本体内に軸心方向に向けて延設された内腔が複数形成され、１つの内腔によって導電性ワイヤが挿通される導電性ワイヤルーメン、他の少なくとも１つの内腔によって前記シース本体を補強するための補強部材を設けた補強ルーメンがそれぞれ形成されると共に、前記シース本体の先端部近傍の外周面に形成されたワイヤ導出口から前記導電性ワイヤが前記シース本体の外部側に導出され、前記導電性ワイヤにおける前記シース本体の外部側に露出部によって高周波切開用のナイフ部が形成される内視鏡用高周波切開装置において、

前記補強部材を、前記シース本体の基端部近傍から基端部側の前記ワイヤ導出口近傍までの範囲に設けたことを特徴とする内視鏡用高周波切開装置。

【請求項２】　内視鏡の処置具挿通チャンネル内を挿通可能な電気絶縁性シースのシース本体内に軸心方向に向けて延設された内腔が複数形成され、１つの内腔によって導電性ワイヤが挿通される導電性ワイヤルーメン、他の少なくとも１つの内腔によって前記シース本体を補強するための補強部材を設けた補強ルーメンがそれぞれ形成されると共に、前記シース本体の先端部近傍の外周面に形成されたワイヤ導出口から前記導電性ワイヤが前記シース本体の外部側に導出され、前記導電性ワイヤにおける前記シース本体の外部側の露出部によって高周波切開用のナイフ部が形成される内視鏡用高周波切開装置において、

前記補強部材を、前記シース本体の基端部近傍から基端部側の前記ワイヤ導出口近傍までの範囲に設けると共に、前記補強部材を設けた部分のシースを曲げたときに、前記ナイフ部と前記シースの中心軸を結んで形成される第１平面に沿った曲げ抵抗よりも、前記シースの中心軸を通り、前記第１平面に垂直方向を向いた第２平面に沿った曲げ抵抗の方が大きくなるように、前記補強部材を前記シースの中心軸に対して、偏らせて設けたことを特徴とする内視鏡用高周波切開装置。

【発明の詳細な説明】

【０００１】

【発明の属する技術分野】本発明は、経内視鏡的に体腔内に挿入し、生体組織、特には、十二指腸乳頭括約筋を高周波電流により切開する内視鏡用高周波切開装置に関する。

【０００２】

【従来の技術】特開平５－７５９７及び特開平５－６８６８５号公報に開示された高周波切開具がある。このような高周波切開具は、チューブのルーメン内に挿入された導電性のワイヤを、チューブ先端部の外壁面に露出させてナイフ部を形成したもので、手元側の操作により導電性ワイヤを引張ることで、チューブ先端部を弓状に湾曲させ、ナイフ部を治療部位に押し当てて高周波電流により切開を行うものである。このような高周波切開具はチューブ先端部の湾曲を容易にするため、比較的柔らかいチューブを用いている。

【０００３】また、特公平６－５３１２５号公報に開示された器具があり、この器具は括約筋の切開方向を制御するために、チューブの１つのルーメン内の先端部分から基端部分の範囲にかけて長方形断面の強化手段を設けている。

【０００４】

【発明が解決しようとする課題】特開平５－７５９７及び特開平５－６８６８５号公報に開示された高周波切開具において、手元側の操作により導電性ワイヤを引張り、チューブ先端部を弓状に湾曲させるときに、チューブが柔らかいので多少は湾曲し易くなるが、チューブが全長に亘って軸方向に撓んでしまうため、導電性ワイヤとチューブのルーメンとの摩擦抵抗により、チューブ先端部の湾曲が容易に行えないという作動性の問題があった。

【０００５】また、このような高周波切開具を内視鏡の処置具挿通チャンネルや、体腔内の細い管腔内に押し込むときにも、チューブが軸方向に撓んでしまい、手元のチューブの押し込み操作が先端部にうまく伝わらず、挿入性が悪くなるという問題があった。

【０００６】ここで、このような内視鏡用高周波切開具を用いて、十二指腸乳頭括約筋を切開するいわゆるＥＳＴを行う場合、一般的には、湾曲機構や、処置具起上装置を備えた後方斜視型の内視鏡と共に使用される。

【０００７】まず、内視鏡を十二指腸内に挿入し、内視鏡の湾曲操作により乳頭を正面視する。次に、内視鏡の処置具挿通用チャンネルより、内視鏡用高周波切開具を挿入し、内視鏡の処置具起上装置の操作や、湾曲操作により、内視鏡用高周波切開具を乳頭から胆管内に挿入する。そして、内視鏡用高周波切開具の手元側の操作により、導電性ワイヤを引っ張り、チューブ先端部を弓状に湾曲させ、ナイフ部を乳頭括約筋位に押し当てて高周波電流により切開を行う。

【０００８】このときのＥＳＴを行う様子を図６、また、図６における内視鏡像を図８に示す。図６に示すように、乳頭を正面視するためには、解剖学的見地から、内視鏡の湾曲部を、その湾曲の中心が内視鏡の視野方向にくるように湾曲させる必要がある。また、内視鏡用高周波切開具を内視鏡の視野範囲内に入れ、かつ、先端部を胆管内に挿入し易くするために、処置具起上装置の操作で、内視鏡用高周波切開具を内視鏡の視野方向に起立させる必要がある。

【０００９】また、図８に示すように、ＥＳＴを合併症無く安全に施行するために、紙面の上方向、いわゆる内視鏡視野内の１２時方向に切開を加える必要がある。従って、図６に示すように、ＥＳＴを施行する際、内視鏡

の湾曲方向、及び処置具起立装置による内視鏡高周波切開具の起立方向、そして、チューブ先端のナイフ部が、ほぼ同一平面上に置かれ、かつ、内視鏡高周波切開具のチューブ先端部が、ナイフ部を内側に向けた湾曲形状を呈することになる。

【００１０】ここで、前述のチューブ湾曲形状に真似て、医師らは、チューブ先端にナイフ部が内側に向くように曲がり癖を付けることで、内視鏡高周波切開具を内視鏡先端から出したときに、ナイフ部の向きが内視鏡の視野内１２時の方向を向いて出るように工夫している。つまり、内視鏡の湾曲形状と、処置具起立装置の向きに対して、チューブの曲がり癖を合致させることで、ナイフ部の向きを安定性が図れるというものである。

【００１１】ここで、この医師によるチューブ先端の曲がり癖作業は、毎回安定しておこなえず、したがって、内視鏡に対するナイフ部の方向性が安定しないという問題点があった。

【００１２】特公平６－５３１２５号公報に開示された器具における、チューブのルーメン内に設けられた強化手段を、特開平５－７５９７及び特開平５－６８６８５のような内視鏡高周波切開具に適合させた場合、チューブ全長に亘って、硬く補強されるため、前述の内視鏡高周波切開具のチューブ全長の撓みによる作動性、挿入性の問題が幾分は解消されると考えられる。

【００１３】また、特公平６－５３１２５号公報の器具における強化部材による、チューブ曲がり方向規制により、内視鏡の湾曲形状と、処置具起立装置の向きに対して、チューブの曲がる方向が合致するため、ナイフ部の方向性の問題が解決されると考えられる。

【００１４】しかし、特公平６－５３１２５号公報の器具では、チューブ先端のナイフ部のルーメン内にも強化部材が設けられているため、チューブ先端部を弓状に湾曲させるときに、強化部材が曲げの抵抗（曲げを妨げる抵抗）となり、結局は、チューブ先端部の湾曲が容易に行えないという作動性の問題が解決されない。

【００１５】更に、チューブ先端部が硬いため、チューブ先端を乳頭から胆管内に挿入する際に、乳頭部付近や、胆管内壁に損傷を与え易く、穿孔や、出血等の重大な合併症を生じる危険性が高くなり、安全性に問題が出てくる。

【００１６】本発明は上述した点に鑑みてなされたもので、従来の技術の問題点を解消し、作動性が良く、チャンネル又は、生体内への挿入性を向上でき、生体に損傷を与えない安全性に優れた内視鏡用高周波切開装置を提供することを目的とする。

【００１７】また、本発明の他の目的は、内視鏡に対する安定したナイフ部の方向性をもつ内視鏡用高周波切開装置を提供することにある。また、本発明の他の目的は、手技が容易な内視鏡用高周波切開装置を提供することにある。

【００１８】

【課題を解決するための手段】内視鏡の処置具挿通チャンネル内を挿通可能な電気絶縁性シースのシース本体内に軸心方向に向けて延設された内腔が複数形成され、１つの内腔によって導電性ワイヤが挿通される導電性ワイヤルーメン、他の少なくとも１つの内腔によって前記シース本体を補強するための補強部材を設けた補強ルーメンがそれぞれ形成されるとともに、前記シース本体の先端部近傍の外周面に形成されたワイヤ導出口から前記導電性ワイヤが前記シース本体の外部側に導出され、前記導電性ワイヤにおける前記シース本体の外部側の露出部によって高周波切開用のナイフ部が形成される内視鏡用高周波切開装置において、前記補強部材を、前記シース本体の基端部近傍から基端部側の前記ワイヤ導出口近傍までの範囲に設けたことを特徴とする。

【００１９】上記構成により、シースが硬くなることで、作動時のシースの撓みを防止し、良好な作動性を確保できる。また、細い管腔もしくは内視鏡のチャンネルへの挿入、押し込み時にもシースが過度に撓んでしまうことなく、良好な挿入性を確保できる。更に、シースのナイフ部分は柔らかいので、シース先端の湾曲が容易に行え、より良好な作動性を確保できる。また、シース先端部も柔らかいため、生体に損傷を与えず、安全にこの装置を使用することができる。

【００２０】また、内視鏡の処置具挿通チャンネル内を挿通可能な電気絶縁性シースのシース本体内に軸心方向に向けて延設された内腔が複数形成され、１つの内腔によって導電性ワイヤが挿通される導電性ワイヤルーメン、他の少なくとも１つの内腔によって前記シース本体を補強するための補強部材を設けた補強ルーメンがそれぞれ形成されるとともに、前記シース本体の先端部近傍の外周面に形成されたワイヤ導出口から前記導電性ワイヤが前記シース本体の外部側に導出され、前記導電性ワイヤにおける前記シース本体の外部側の露出部によって高周波切開用のナイフ部が形成される内視鏡用高周波切開装置において、前記補強部材を、前記シース本体の基端部近傍から基端部側の前記ワイヤ導出口近傍までの範囲に設けるとともに、前記補強部材を設けた部分のシースを曲げたときに、前記ナイフ部と前記シースの中心軸を結んで形成される第１平面に沿った曲げ抵抗よりも前記シースの中心軸を通り、前記第１平面に垂直方向を向いた第２平面に沿った曲げ抵抗の方が大きくなるよう、前記補強部材を前記シースの中心軸に対して、偏らせて設けたことを特徴とする。

【００２１】上記構成により、前述の良好な作動性、挿入性、安全性が確保できるだけではなく、補強部材によりナイフ基端部シースの曲げ方向が規制させるため、内視鏡に対する、安定したナイフの方向性を実現することができる。

【００２２】

【発明の実施の形態】以下、本発明の第１の実施の形態を図１～図８を参照して説明する。図１は高周波電流を用いて体腔内の生体組織、特には十二指腸乳頭括約筋を切開する（いわゆるＥＳＴ）内視鏡用高周波切開装置全体の外観を示し、図２はシースの先端側の構造を断面図で示し、図３は図２のＡ－Ａ線断面及び図４のＤ－Ｄ線断面を拡大して示し、図４は図３（Ａ）のＣ－Ｃ線断面でシースの先端側の構造を示し、図５はシースの手元側の断面構造及びＥ部を拡大して示し、図６ないし図８は経内視鏡的に切開する作用の説明図を示す。なお、図２は図３（Ａ）のＢ－Ｂ線の縦断面でのシースの先端側を示す。また、図８は図６における実際の内視鏡画像を示す。

【００２３】図１に示すように本発明の第１の実施の形態の内視鏡用高周波切開装置（以下、単に切開装置とも記す）１１は内視鏡１２（図６、図７及び図２０参照）の図示しない処置具挿通チャンネルを通して患者の体内に挿入される可撓性を有する細径の挿入部１３と、この挿入部１３の基端部側に配設され、患者の体外で術者がこの切開装置１１を操作するための手元側の操作部１４とから構成されている。

【００２４】この切開装置１１の挿入部１３は図２に示すように電気的に絶縁性を有する部材で形成されたシース１５で構成されている。この電気的絶縁性のシース１５の本体（つまり、シース本体）１５ａは、電気的に絶縁性を有すると共に、熱可塑性を有する樹脂、例えばＰＴＦＥ，ＦＥＰ等のフッ素系樹脂製で形成されており、本実施の形態では３つのルーメン（内腔）を有する可撓性の多孔チューブによって形成されている。

【００２５】即ち、図３（Ａ），（Ｂ）に示すようにシース本体１５ａ内には金属製ワイヤ等、導電性を有する導電性ワイヤ１６を挿通するワイヤルーメン１７ａと、図示しないガイドワイヤの挿通及び／又は液体（特に造影剤）の注入に差し障りのない（支障のない）十分な内径を有する多目的ルーメン１７ｂと、シース本体１５ａを補強するための補強ワイヤ１８を挿通する補強ルーメン１７ｃとの３つのルーメンが設けられ、それぞれ軸心方向（つまり、シース本体１５ａの長手方向）に向けて延設されている。

【００２６】ここで、シース本体１５ａ内のワイヤルーメン１７ａ内には図２に示すように導電性ワイヤ１６が挿通され、多目的ルーメン１７ｂ内にはガイドワイヤが挿通されたり、或いは液体が注入される送液路が形成されるようになっており、多目的ルーメン１７ｂの先端は開口している。

【００２７】また、補強ルーメン１７ｃ内には、金属製等の補強部材、より具体的には細径でも硬度が大きいステンレス製の補強ワイヤ１８が、シース基端部（図５（Ｃ）参照）から、図４に示すシース先端部１５ｄのすぐ基端まで挿通されて、固定されている。

【００２８】なお、図４中にはナイフ部２０は現れないが、補強ワイヤ１８の先端側の位置とナイフ部２０との軸心方向における相対的な位置関係を分かりやすくするために２点鎖線でナイフ部２０を示した（他の図１１、図１５、図１６でも同様の意味で２点鎖線でナイフ部２０を示している）。

【００２９】この補強部材、より具体的にはステンレス製の補強ワイヤ１８は細径でもその硬度が大きいので、十分に小さな外径の補強ワイヤ１８によって、シース本体１５ａの撓み易さの度合い（撓み性、或いは柔らかさとも記す）を十分に調整できる。このため、シース本体１５ａの断面における補強ルーメン１７ｃ及び補強ワイヤ１８の断面積は十分小さくても済むメリットがある。

【００３０】また、このステンレス製の補強ワイヤ１８はＸ線不透過の機能も有し、Ｘ線照射の下でシース本体１５ａ（より厳密には補強ワイヤ１８）の位置の確認も行うことができる。

【００３１】本実施の形態では、このようにシース本体１５ａ内に補強ルーメン１７ｃを設けて、補強ワイヤ１８を挿通してシース本体１５ａの柔らかすぎる（或いは撓みすぎる）のを適度の柔らかさとなるように補強している。

【００３２】そして、この補強により、内視鏡１２の処置具挿通チャンネル内とか細い体腔内に挿通する際に座屈し易いようなシースの場合に対しても、過度の撓み易さをより少なくして適度の撓み性を有するシース１５にし、内視鏡１２の細い処置具挿通チャンネル或いは生体内に挿入する場合にも、シース本体１５ａの手元の押し込み操作がシース先端部１５ｄまで十分に伝えられて、シース１５が座屈することなく容易に挿通できる挿入性を確保していることが特徴となっている。

【００３３】また、シース先端部１５ｄは補強されていないため、シースが柔らかく、生体内に挿入する際の生体への損傷が防止でると共に、シース先端部１５ｄを湾曲させてナイフ部２０を形成させる際に、容易に湾曲操作（作動が行えるという特徴を有している。

【００３４】また、シース本体１５ａの先端部、つまりシース先端部１５ｄの外周面にはワイヤルーメン１７ａを挿通可能とする２つのワイヤ導出口１９ａ、１９ｂが形成されている。これらのワイヤ導出口１９ａ、１９ｂはシース本体１５ａの軸方向に沿って前後２か所の位置に設けている。

【００３５】そして、シース本体１５ａのワイヤルーメン１７ａ内に挿通された導電性ワイヤ１６の先端側は、シース先端部１５ｄに設けた２つのワイヤ導出口１９ａ、１９ｂからシース本体１５ａの外部側に導出され、このシース本体１５ａの外部側に露出されたワイヤ露出部１６ａによって高周波切開用のナイフ部２０が形成されるようになっている。なお、本明細書では、図２に示すようにシース１５の先端面からナイフ部２０の後端ま

でをシース先端部１５ｄと呼ぶ。

【００３６】ここで、導電性ワイヤ１６は金属製、より具体的にはステンレス製の可撓性ワイヤである。この導電性ワイヤ１６の先端部は金属製、より具体的には、ステンレス製、金属、銀製、プラチナ製、タングステン製のＸ線不透過パイプ（Ｘ線不透過部材でパイプ形状にしたもの）２１の内腔に挿入され、固着剤（より具体的には半田付、ろう付、接着）、あるいは溶着（特には、レーザ溶接、プラズマ溶接）などの手段により、固定されている。

【００３７】さらに、Ｘ線不透過パイプ２１の外径寸法はシース本体１５ａのワイヤルーメン１７ａの内径寸法よりもわずかに大きくなるように設定されている。そして、このＸ線不透過パイプ２１は前方のワイヤ導出口１９ａよりも更に先端側のワイヤルーメン１７ａ内に圧入、または接着等の手段により固定されている。

【００３８】また、シース本体１５ａの最先端部にはシース本体１５ａの中間部の外径寸法D1 よりも小さい外径寸法D2 を有する細径部１５ｂが形成され、挿入などし易くしている。

【００３９】さらに、シース本体１５ａの先端部付近の外周面には図１に示すように複数のマーキングが施されたマーキング部２２がシース本体１５ａの軸心方向に沿って形成されており、このマーキング部２２により概略の長さの把握ができるようにしている。

【００４０】次に、切開装置１１の操作部１４について説明する。この操作部１４には図１及び図５（Ａ）に示すように略Ｙ字状の連結部材２３が設けられている。この連結部材２３の先端部側には共通連結部２３ａが設けられ、後端部側は２つに分岐した分岐連結部２３ｂ、２３ｃが設けられている。そして、共通連結部２３ａの管腔内に挿入部１３の基端部側が挿入されて連結されている。

【００４１】また、連結部材２３の一方の分岐連結部２３ｂの後端に操作部本体２４が固定されている。この操作部本体２４には、スライダ２５がこの操作部本体２４の長手方向にスライドして移動可能に装着されている。さらに、このスライダ２５には導電性ワイヤ１６の基端部が導電性の操作パイプ２６（図５（Ｂ）参照）及び導電性のプラグ２７を介して固定されている。

【００４２】このプラグ２７は図示しない電気ケーブルを介して高周波電源装置に接続され、フットスイッチ等をＯＮすることにより高周波電源装置から高周波電流が導電性ワイヤ１６に流れ、ナイフ部２０で生体組織を切開することができる。

【００４３】また、連結部材２３には図５（Ｂ）に示すようにシース本体１５ａのワイヤルーメン１７ａに連通され、操作パイプ２６が前後に移動可能な操作パイプルーメン２８と、図５（Ａ）に示すようにシース本体１５ａの多目的ルーメン１７ｂに連通する分岐多目的ルーメン２９とが形成されている。なお、シース本体１５ａの後端付近は多目的ルーメン１７ｂの周囲の壁部が切り欠かれて外側の分岐多目的ルーメン２９と連通している。

【００４４】ここで、操作パイプルーメン２８は連結部材２３の一方の分岐連結部２３ｂ側に形成され、分岐多目的ルーメン２９は連結部材２３の他方の分岐連結部２３ｃ側に形成されている。さらに、分岐多目的ルーメン２９の末端部には、造影剤などを注入する注射筒を着脱自在に固定するために雌ルアー口金３０が設けられている。また、この雌ルアー口金３０にはガイドワイヤを挿通することも可能で、ガイドワイヤの挿通により目的部位への挿通を容易に行う場合にも利用される。

【００４５】なお、図５（Ｃ）は図５（Ａ）のＥ部における補強ルーメン１７ｃを通る断面を示している。本実施の形態ではこの図５（Ｃ）に示すシース本体１５ａの後端のシース基端部１５ｃから、図４に示すシース先端部１５ｄのすぐ基端部まで補強ルーメン１７ｃ内に補強ワイヤ１８が挿通されている。

【００４６】次に、上記構成の内視鏡用高周波切開装置１１の作用を、経内視鏡的に体腔内に挿入し、生体組織、特に十二指腸乳頭部のような管腔部出口を高周波電流により切開する場合で説明する。

【００４７】まず、内視鏡用高周波切開装置１１が使用されていない状態では操作部１４のスライダ２５が操作部本体２４に対して前端側に移動させた待機位置で保持される。この時、シース本体１５ａの先端部は略直線状に伸張された状態で保持される。

【００４８】この状態で、シース本体１５ａの先端から１５ｃｍ程度の範囲まで、ナイフ部２０が内側を向くように略円弧状に曲がり癖をつける。

【００４９】この状態で、図６に示すように、予め、十二指腸４１内に挿入された内視鏡１２の内視鏡挿入部３１内に設けられた図示しない処置具挿通チャンネルに切開装置１１の挿入部１３を挿入し、内視鏡挿入部３１の先端部３２に設けられた処置具挿通チャンネルの先端開口部から切開装置１１の挿入部１３を外部側に突出させる。

【００５０】この場合、シース先端部１５ｄに略円弧状の曲がり癖をつけることによって、内視鏡挿入部３１の先端部３２の湾曲形状と、処置具起立装置３２ａの向きに対して、この曲がり癖の向きが合致し、図８に示すように、ナイフ部２０の向きが内視鏡の視野内の１２時の方向（紙面における上方向）に向いて突き出すことができる。

【００５１】この場合、シース本体１５ａにはその軸方向に補強ワイヤ１８が設けてあり、補強ワイヤ１８を設けていない場合よりも撓みにくくしているので、内径が小さい処置具挿通チャンネルの場合でも、挿入時、シース本体ａの手元の押し込みがシース先端部１５ｄなで十分に伝えられ、シース本体１５ａが座屈してしまうこと

なく、シース本体１５ａを簡単かつ短時間に挿通することができる。

【００５２】続いて、内視鏡挿入部３１の湾曲部３３の湾曲操作、先端部３２の先端開口部に設けられた処置具起上装置３２ａの起上操作、または、切開装置１１の挿入部１３全体の押し引き操作により、切開装置１１の挿入部１３の先端部を乳頭４２から胆管４３内に挿入する。

【００５３】この場合にも、処置具挿通チャンネル内に位置するシース本体１５ａや、内視鏡１２の処置具挿通チャンネルから出ているシース部分の撓みが少なくなり、シース本体１５ａの手元の押し込みがシース先端部１５ｄまで十分に伝えられ、シース本体１５ａが座屈することなく内径の小さい乳頭内にも、簡単に挿入することができる。

【００５４】また、シース先端部１５ｄは補強されていないため、シースが柔らかく、乳頭付近や胆管４３内壁に損傷を与えることなく、穿孔や、出血の合併症を伴う危険性が少ない。

【００５５】その後、必要に応じて連結部材２３の分岐連結部２３ｃ側の雌ルアー口金３０に図示しない注射筒を取付ける。そして、この注射筒から注入される造影剤を分岐多目的ルーメン２９及びシース本体１５ａの多目的ルーメン１７ｂを通して胆管４３内に送り、胆管４３内の造影を行う。

【００５６】次に、シース本体１５ａの先端部の外周面のマーキング部２２を目安にして、シース本体１５ａの乳頭４２への挿入深さを調整する。この場合にもシース本体１５ａの手元の押し込みがシース先端部１５ｄまで十分に伝えられるため、容易に挿入することができる。

【００５７】次に、操作部１４のスライダ２５を操作部本体２４に対して後端側に移動させる。このスライダ２５の操作にともない導電性ワイヤ１６が手元側に引っ張られるように操作されるので、シース本体１５ａの先端部が図６に示すように略円弧状に湾曲し、その結果、シース本体１５ａの外部側に露出されたワイヤ露出部１６ａが弓の弧状に限られてナイフ部２０が形成される。

【００５８】この場合、シース先端部１５ｄ（ワイヤ露出部１６ａ）は補強ワイヤ１８により補強されていないため、シースが柔らかく、シース本体１５ａの先端部が湾曲する際、容易に湾曲でき、良好な作動性が実現できる。

【００５９】また、別の方法としては、操作部１４のスライダ２５を操作部本体２４に対して先端側に移動させると、図7に示すように、導電性ワイヤ１６が押され、円弧状のナイフ部２０が形成される。

【００６０】さらに、弓の弧状に、或いは円弧状にナイフ部２０を形成後、ナイフ部２０に高周波電流を通電し、図８での紙面の上方向（内視鏡１２の視野内の１２時方向）に乳頭括約筋を切開する。切開が終了したら、スライダ２５を元の位置に戻し、切開装置１１を内視鏡１２の処置具挿通チャンネルから引き抜く。

【００６１】本実施の形態の効果は以下のようになる。本実施の形態によれば、シース本体１５ａの撓み性を補強ワイヤ１８で補強して撓み性がより少ない適度の撓み性にしているので、内視鏡１２の処置具挿通チャンネル内や細い管腔内への挿入時、シース本体１５ａの手元の押し込みがシース先端部１５ｄまで十分に伝えられ、挿入性の向上を実現することができる。

【００６２】また、本実施の形態によれば、補強ワイヤ１８により、シース基端部からシース先端部１５ｄのすぐ基端部側のワイヤ導出口付近まで補強され、シース先端部１５ｄは補強されておらず、シースが補強部分よりも柔らかいので、生体内に挿入する際の、生体への損傷を防止できると共に、シース先端部１５ｄを湾曲する際、容易に湾曲でき、良好な作動性を実現できる。

【００６３】また、補強ルーメン１７ｃ内にステンレスワイヤを入れるだけで形成できるので、簡単に組立ができ、安価に製作することができる。また、この補強ワイヤ１８としてステンレスワイヤ等のＸ線不透過の部材とすることにより、Ｘ線照射下でのシース本体１５ａの位置確認も行うことができる。

【００６４】また、本実施の形態によれば、シース本体１５ａの撓み性を補強ワイヤ１８で補強して撓み性がより少ない適度の撓み性にできるので、十分に細径のシース本体の場合にも挿入の際に座屈が発生することを有効に防止できる。このため、より細径にしたシース本体の場合でも、座屈することなく、処置具挿通チャンネル内等に挿通して切開処置を施すことが可能になる。この場合、より小さい内径の処置具挿通チャンネルの内視鏡１２で使用でき、内視鏡挿入部３１の外径が小さいものでも使用できる（内視鏡挿入部３１としてより細径のものが使用できるので、挿入の際の患者に与える苦痛を軽減できるし、挿入使用できる範囲（使用部位）を拡大できる）。

【００６５】（第２の実施の形態）次に本発明の第２の実施の形態を図９～図１２を参照して説明する。図９はシースの先端側の構造を断面図で示し、図１０（Ａ），（Ｂ）は図９のＡ′－Ａ′線断面及び図１１のＤ′－Ｄ′線断面を拡大して示し、図１１は図１０（Ａ）のＨ－Ｈ及びＩ－Ｉ穿断面でシースの先端側の構造を示し、図１２は本実施の形態の切開装置の先端部を斜め方向から見た外観図を示している。なお、図９は図１０（Ａ）のＦ－Ｆ線の縦断面でのシースの先端側を示している。

【００６６】第１の実施の形態と比較して異なるところは、本実施の形態ではシース１５には２つの補強ルーメン１７ｃ，１７ｄが形成され、その中に各々補強ワイヤ１８ａ，１８ｂを挿通して補強したものである。

【００６７】補強ワイヤ１８ａ，１８ｂは、シーズ１５

の基端から図１１に示すようにナイフ部２０のすぐ手前の部分まで挿入したものである。

【００６８】ここで、図１２に示すように、ナイフ部２０と、シース１５の中心軸Ｐを結んで形成される平面をＱ平面とし、また前記中心軸Ｐを通り、前記Ｑ平面に垂直方向を向いた平面をＲ平面としたとき、この２つの補強ワイヤ１８ａ，１８ｂにより、補強ワイヤを設けた部分のシース１５を曲げた際、Ｑ平面に沿った曲げ抵抗よりも、Ｒ平面に沿った曲げ抵抗の方が大きくなるように２つの補強ワイヤ１８ａ，１８ｂの配置を偏らせて配置している。

【００６９】つまり、Ｑ平面及びＲ平面を併記した図９（Ｂ）の断面図から分かるように、ナイフ部２０を含む平面となるＱ平面に沿って（或いはＱ平面上で）シース本体１５ａを曲げる際の曲げ抵抗よりも、このＱ平面に垂直で中心軸を含むＲ平面に沿って（或いはＲ平面上で）シース本体１５ａを曲げる際の曲げ抵抗の方が大きくなるように、２つの補強ワイヤ１８ａ，１８ｂをＲ平面に近くなるように（或いはＲ平面からの距離が、Ｑ平面からの距離より小さくなるように）偏らせて配置していることが特徴となっている。

【００７０】本実施の形態の作用は、第１の実施の形態の場合と同様に、まず、シース本体１５ａの先端から１５ｃｍ程度の範囲まで、ナイフ部２０が内側を向くように略円弧状に曲がり癖をつける。あるいは、この曲がり癖をつける作業を省略しても良い。次に、操作部１４のスライダ２５の操作により、シース本体１５ａの先端部を略円弧状に数回湾曲させることで、シース先端部１５ｄに曲がり癖をつける。

【００７１】この状態で、第１の実施の形態の場合と同様に内視鏡１２に挿入し、処置具挿通チャンネルの先端開口部から外部側に突出させる。この場合、前述のシース１５の曲げ抵抗の違いにより、図１２に示すＲ平面に沿った曲がりはなく、Ｑ平面に沿って、シース１５が曲げられる。従って、内視鏡挿入部３１の先端部３２の湾曲形状と、処置具起立装置３２ａの向きに対して、シースの曲がり方向が規制され、図８に示すように、ナイフ部２０の向きが内視鏡１２の視野内の１２時の方向（紙面における上方向）に向いて出すことができる。よって、第１の実施の形態よりも、より正確なナイフ部２０の方向安定性が得られる。

【００７２】本実施の形態の効果は、第１の実施の形態の効果に加え、以下のような効果がある。２つの補強ワイヤ１８ａ，１８ｂの配置により、シース１５の曲げ方向を規制されるため、内視鏡１２の視野に対して、必ず１２時の方向に突出し、安定したナイフ部２０の方向性を実現することができる。よって、合併症なく、安全にＥＳＴを施行できるという効果を有する。

【００７３】（第３の実施の形態）次に本発明の第３の実施の形態を図１３～図１６を参照して説明する。図１３はシースの先端側の構造を断面図で示し、図１４（Ａ），（Ｂ），（Ｃ）は図１３のA″－A″線断面、図１５のD″－D″線断面、及び図１６のＧ－Ｇ線断面を拡大して示し、図１５は図１４（Ａ）のH′－H′線断面でシースの先端側の構造を示し、図１６は図１４のＩ′－Ｉ′線断面でシースの先端側の構造を示す。なお、図１３は図１４（Ａ）のF′－F′線縦断面でのシースの先端側を示している。

【００７４】第２の実施の形態と比較して異なるところは、本実施の形態ではシース１５には２つの補強ルーメン１７ｃ，１７ｄが形成され、その中に各々長さの異なる補強ワイヤ１８ａ、１８ｂを挿通して補強したものである。

【００７５】補強ワイヤ１８ａは、シース１５の基端から図１５に示すようにシース１５の先端面からＬ１の長さの位置まで挿通されている。また、補強ワイヤ１８ｂはシース１５の基端から図１６に示すようにシース１５の先端面からＬ２の長さの位置まで挿通されている。ここでＬ１とＬ２の長さが異なる。

【００７６】本実施の形態の作用は、第２の実施の形態とほぼ同じである。本実施の形態は以下の効果がある。２本の補強ワイヤ１８ａ，１８ｂを挿通し、かつ挿通している長さが異なるので、シース１５の硬さを段階的に変えられるという効果がある。より、具体的には内視鏡の処置具挿通チャンネル内等に挿通する場合に対しては、シース１５の先端側よりも後方側が座屈し易い。

【００７７】このため、最も座屈し易くなるシース１５の後端側は２本の補強ワイヤ１８ａ，１８ｂにより座屈しない（シース１５の軸心方向に対して）やや硬度を持たせた柔らかさ或いは撓み性に設定し、かつこの部分より前側は１本の補強ワイヤ１８ａにより座屈しない程度の柔らかさ或いは撓み性にし、さらにシース先端部１５ｄは最も座屈しにくいので、補強することなく、ナイフ部２０を容易に設定できるように十分に柔らかい柔らかさ或いは撓み性に設定することができる。

【００７８】また、内視鏡の処置具挿通チャンネルからシース先端側を突出させた場合、その突出する部分がシース先端部１５ｄより後方側までとなる場合にはその突出する出口付近でのシース部分が柔らかすぎると、シース１５の手元の押込時、その部分より撓んでしまうが、シース先端部１５ｄの手前の位置まで１本の補強ワイヤ１８ａで補強しているので、そのような事態が発生する事を解消できる。

【００７９】（第４の実施の形態）次に本発明の第４の実施の形態を図１７～図２０を参照して説明する。図１７は第４の実施の形態の内視鏡用高周波切開装置を示し、図１８は採石バスケット鉗子を示し、図１９は多目的ルーメン内に採石バスケット鉗子を収納した状態でのシースの先端側の構成を示し、図２０は採石バスケット鉗子を用いて結石の回収の処置を行う使用例を示す。

【００８０】本実施の形態の内視鏡用高周波切開装置１１′は第１～第３の実施の形態の内視鏡用高周波切開装置１１に、生体内の結石を把持して生体外に排泄されるように処置する把持用処置具の機能を付加したものであり、そのために第１～第３の実施の形態の内視鏡用高周波切開装置１１に図１８に示す採石バスケット鉗子５１を組み合わせたものである。

【００８１】図１８に示すように採石バスケット鉗子５１には、操作ワイヤ５２の先端に複数のワイヤでバスケット形状に拡開する拡開習性が付与されたバスケットワイヤ５３が各バスケットワイヤ５３の先端を先端チップ５４で一つに束ねて、結石を内側に収納して把持する結石把持部或いは採石部としてのバスケット部５０が形成されている。また、この操作ワイヤ５２の後端は操作パイプ５５に固定され、この操作パイプ５５のさらに手元側端部に操作つまみ５６が固定され、操作部が一体的に形成されている。

【００８２】この採石バスケット鉗子５１のバスケット部５０は切開装置１１′を構成するシース本体１５ａに設けた多目的ルーメン１７ｂの中に雌ルアー口金３０から挿入可能であり、操作つまみ５６を前方に移動する前進操作を行うことにより操作ワイヤ５２を介して図１７に示すようにこの切開装置１１′のシース先端の開口（つまり多目的ルーメン１７ｂの先端開口）からバスケット部５０を突き出る状態に設定できる。

【００８３】また、図１７の状態で操作つまみ５６を把持して後方に移動する後退操作を行うことにより、操作ワイヤ５２を介して図１９に示すように、バスケット部５０の拡開する拡開習性に抗して、このバスケット部５０を閉じさせ、多目的ルーメン１７ｂ内に引き込むこともできる。

【００８４】次に作用を説明する。図２０に示すように例えば胆管４３内に結石４４ができた場合に、採石バスケット鉗子５１を組み合わせない状態での切開装置１１′（つまり第１～第３の実施の形態の切開装置１１で図６のようにして）でまずＥＳＴを行う。

【００８５】その後に、この切開装置１１′の多目的ルーメン１７ｂ内に採石バスケット鉗子５１を先端側から挿通し、操作ワイヤ５２を前進させる操作を行い、多目的ルーメン１７ｂの先端開口からバスケット部５０側を突出させる。先端開口から突出するバスケット部５０はそれぞれ拡開する習性が与えられているバスケットワイヤ５３で形成されているので、バスケット状に拡開する。従って、図２０に示すようにこの拡開したバスケット部５０内に結石４４を収納し、さらに操作ワイヤ５２を後退させる操作を行い、バスケット部５０内に収納した結石４４が逃げないように把持する。

【００８６】その後、シース１５を後方側に移動させて、シース１５の先端側（シース１５の先端部及びバスケット部５０）を胆管４３内から十二指腸４１内に移動させ、バスケット部５０に収納した結石４４をそのバスケット部５０からその周囲の十二指腸４１内に出し、自然に排泄されるようにする。

【００８７】本実施の形態は以下の効果を有する。内視鏡的乳頭切開処置から結石４４の回収まで１本の処置具で行えるため、手技を簡略化かつ短時間にできると共に、患者に与える苦痛もより軽減できる。その他は第１～第３の実施の形態と同様の効果がある。

【００８８】（第５の実施の形態）次に本発明の第５の実施の形態を図２１及び図２２を参照して説明する。図２１は第５の実施の形態の内視鏡用高周波切開装置を示し、図２２（Ａ）は採石バスケット鉗子のワイヤ部を示し、図２２（Ｂ）は採石バスケット鉗子の操作部を示す。

【００８９】図２１に示す本実施の形態の内視鏡用高周波切開装置１１″は第４の実施の形態と同様に第１～第３の実施の形態の内視鏡用高周波切開装置１１に結石の回収を行う機能を設けたものであり、第４の実施の形態と異なるところは、この採石バスケット鉗子５１′は図２２（Ａ），（Ｂ）に示すようにワイヤ部５７と操作部５８とが着脱自在の構成である（第４の実施の形態の採石バスケット鉗子５１はワイヤ部と操作部とが一体化した構成である）。

【００９０】ワイヤ部５７は操作ワイヤ５２の先端に複数のバスケットワイヤ５３の後端を取り付け、各先端を先端チップ５４により一つに束ねてバスケット部５０を形成している。また、操作ワイヤ５２の後端には操作パイプ５５、さらにその後端にはスライダ固定部５９が設けられている。

【００９１】また、操作部５８は、操作部本体５８ａと、これにスライド可能なスライダ５８ｂと、さらに操作部本体５８ａの先端には雄ルアー口金５８ｃが形成されている。

【００９２】ワイヤ部５７の後端のスライダ固定部５９は操作部５８のスライダ５８ｂに固定可能であり、また操作部本体５８ａの先端の雄ルアー口金５８ｃは内視鏡用高周波切開装置１１″の雌ルアー口金３０に固定可能にして、操作部５８を片手で把持し、かつスライダ５８ｂの前進及び後退機能により結石の回収の操作が容易にできるようにしている。

【００９３】本実施の形態の作用は第４の実施の形態とほぼ同じである。本実施の形態の効果は以下のようになる。第４の実施の形態は両手で操作しなければならないのに対し、本実施の形態では片手での操作が可能であるため、手技の容易化が計れる。その他は第１～第３の実施の形態と同様の効果がある。

【００９４】（第６の実施の形態）次に本発明の第６の実施の形態を図２３（Ａ）を参照して説明する。図２３（Ａ）は第６の実施の形態の内視鏡用高周波切開装置のシース先端側を示す。本実施の形態は第４、第５の実施

の形態のバスケット部５０による結石把持部とは異なり、スネアループ６０によって結石把持部が形成されている。

【００９５】このスネアループ６０は操作ワイヤ５２の先端にループ形状になるように両端を互いに固着した弾性を有する１対のワイヤ６１とか、或いは１本の弾性を有するループ形状のワイヤ６１を用いて形成されており、このスネアループ６０内に結石を入れ、スネアループ６０の基端側を多目的ルーメン１７ｂ内に収納してループを絞り込むことにより結石を把持することができる。

【００９６】また、把持した結石を十二指腸内で放出するにはスネアループ６０を多目的ルーメン１７ｂの先端開口より前方に突出させることによりループを広げ、簡単に放出することができる。

【００９７】図２３（Ｂ）は第６の実施の形態の変形例におけるシース先端側を示す。この変形例では結石を把持する結石把持部が先端に爪を設けた、例えば３本爪６２により形成されている。この３本爪６２は先端を内側に折り曲げ、互いに拡開する弾性を有する３本のワイヤ６３の後端を操作ワイヤ５２の先端部にろう付け、半田付け等で固着して形成されている。

【００９８】この３本爪６２も多目的ルーメン１７ｂからの突出量を調整することにより、拡開量を調整して、結石の把持及び把持して結石の開放（放出）を行うことができる。なお、シース本体１５ａを補強部材で補強する場合、例えばシース本体１５ａの長手方向に長溝を形成し、その長溝に補強ワイヤ１８を収納して補強する構造にしても良い。この場合には、例えばシース先端部１５ｄでの補強を行わない等の調整を行うことが容易にできる。

【００９９】また、補強部材を挿通する補強ルーメン１７ｃ等を設けることなく、多目的ルーメン１７ｂ内に補強ワイヤ１８を挿通してシース１５を補強するようにしても良い。この場合、必要に応じて補強ワイヤ１８をコーティングしても良い。また、多目的ルーメン１７ｂの断面形状を円形とは異なる形状にしても良い。

【０１００】また、第１の実施の形態のように１本の補強ワイヤ１８を設ける場合、この補強ワイヤ１８の断面形状を円形でなく板形状など扁平断面にし、その扁平方向をナイフ部２０を含みシース１５の中心軸とを結ぶ平面（以下、第１平面と記す）に垂直となるように配置して、第１平面に垂直な方向には曲がりにくく、この第１平面に沿って曲がり易くなるようにして、ナイフ部２０による切開処置を行い易くできるようにしても良い。この場合、導電性ワイヤ１６を、補強ワイヤ１８より曲がり易い導電性の部材で形成すると、補強ワイヤ１８の扁平形状の機能が相対的に大きくなり、さらに第１平面に沿って曲がり易くできる。

【０１０１】また、補強部材により実質的にシース基端部付近からワイヤ導出口よりも基端部まで補強されていて、ワイヤ導出口よりも先端側のシースの硬さが、作動性や生体に対する損傷に差し支えないレベルのものであれば、補強部材がシース基端部付近からシース先端部まで設けたものも本発明に属する。この具体例としては、例えば、ワイヤ導出口の基端よりシース先端側に柔らかい材質の補強部材を延出したものとか、ワイヤ導出口付近まで延出した補強部材を、その断面積を小さくしてさらにワイヤ導出口より先端側に延出したもの等が該当する。なお、上述の各実施の形態等を部分的に組み合わせる等して形成した実施の形態等も本発明に属する。

【０１０２】［付記］

１．内視鏡の処置具挿通チャンネル内を挿通可能な電気絶縁性シースのシース本体内に軸心方向に向けて延設された内腔が複数形成され、１つの内腔によって導電性ワイヤが挿通される導電性ワイヤルーメン、他の少なくとも１つの内腔によって前記シース本体を補強するための補強部材を設けた補強ルーメンがそれぞれ形成されると共に、前記シース本体の先端部近傍の外周面に形成されたワイヤ導出口から前記導電性ワイヤが前記シース本体の外部側に導出され、前記導電性ワイヤにおける前記本体の外部側の露出部によって高周波切開用のナイフ部が形成される内視鏡用高周波切開装置において、前記補強部材を、前記シース本体の基端部近傍から基端部側の前記ワイヤ導出口近傍までの範囲に設けたことを特徴とする内視鏡用高周波切開装置。

【０１０３】２．内視鏡の処置具挿通チャンネル内を挿通可能な電気絶縁性シースのシース本体内に軸心方向に向けて延設された内腔が複数形成され、１つの内腔によって導電性ワイヤが挿通される導電性ワイヤルーメン、他の少なくとも１つの内腔によって前記シース本体を補強するための補強部材を設けた補強ルーメンがそれぞれ形成されると共に、前記シース本体の先端部近傍の外周面に形成されたワイヤ導出口から前記導電性ワイヤが前記シース本体の外部側に導出され、前記導電性ワイヤにおける前記本体の外部側の露出部によって高周波切開用のナイフ部が形成される内視鏡用高周波切開装置において、前記補強部材を、前記シース本体の基端部近傍から基端部側の前記ワイヤ導出口近傍までの範囲に設けると共に、前記補強部材を設けた部分のシースを曲げたときに、前記ナイフ部と前記シースの中心軸を結んで形成される第１平面にそった曲げ抵抗よりも、前記シースの中心軸をとおり、前記第１平面に垂直方向を向いた第２平面に沿った曲げ抵抗の方が大きくなるよう、前記補強部材を前記シースの中心軸に対して、偏らせて設けたことを特徴とする内視鏡用高周波切開装置。

【０１０４】３．内視鏡の処置具挿通チャンネル内を挿通可能な電気絶縁性シースのシース本体内に軸心方向に向けて延設された内腔が複数形成され、１つの内腔によって導電性ワイヤが挿通される導電性ワイヤルーメン、

他の少なくとも１つの内腔によって前記シース本体を補強するための補強部材を設けた補強ルーメンがそれぞれ形成されるとともに、前記シース本体の先端部近傍の外周面に形成されたワイヤ導出口から前記導電性ワイヤが前記シース本体の外部側に導出され、前記導電性ワイヤにおける前記シース本体の外部側の露出部によって高周波切開用のナイフ部が形成される内視鏡用高周波切開装置において、前記補強部材を、前記シース本体の基端部近傍からシース先端部近傍まで設け、実質的に、シース基端部近傍から、前記基端部側のワイヤ導出口までの範囲が補強されることを特徴とする内視鏡用高周波切開装置。

【０１０５】４．前記補強部材は、複数のルーメン内に各々設けられ、その内の少なくとも１つの補強部材の先端位置が、他の補強部材の先端位置と異なることを特徴とする付記１記載の内視鏡用高周波切開装置。

５．前記補強部材は、金属製ワイヤであることを特徴とする付記１又は付記２記載の内視鏡用高周波切開装置。

【０１０６】６．前記多目的ルーメンの先端開口部から、操作ワイヤの前進操作によって突出し、かつ、後退操作によって、前記多目的ルーメンの先端開口部から引き込まれて収納される把持部材を設けた把持用処置具を備え、前記把持用処置具を組み合わせて使用できることを特徴とする付記１ないし付記３記載の内視鏡用高周波切開装置。

【０１０７】（付記６～８に関連する背景）特開平３－５４６１５号公報のような内視鏡用処置具が知られている。通常、先ほどの特開平の高周波切開具を用いて内視鏡的十二指腸切開術を行ったのち、総胆管内の石を砕石する場合に、このような内視鏡処置具を用いるが、高周波切開具、またこの内視鏡用処置具の十二指腸乳頭から総胆管への挿入が非常に難しく、このような処置具の出し入れをする手技が非常に煩雑であった。このため、手技が容易な内視鏡用高周波切開装置を提供することにある。

【０１０８】７．前記把持用処置具は、操作ワイヤ先端に把持部材を有するワイヤ部と、操作部とから構成され、前記操作部は互いに前後に移動可能な操作部本体とスライダとからなり、前記操作部本体は前記多目的ルーメンの基端部に着脱可能で、かつ前記スライダはワイヤ部の基端部に着脱自在であることを特徴とする付記４記載の内視鏡用高周波切開装置。

【０１０９】８．前記把持用処置具の前記把持部材は、前記操作ワイヤの前進操作により、多目的ルーメンの先端開口部から突出し、自己の開拡習性により開放動作を行い、前記操作ワイヤの後退操作により、前記多目的ルーメンの先端開口部から自己の習性に抗して引き込まれて収納されることを特徴とする付記４又は付記５記載の内視鏡用高周波切開装置。

【０１１０】

【発明の効果】以上述べたように本発明によれば、内視鏡の処置具挿通チャンネル内を挿通可能な電気絶縁性シースのシース本体内に軸心方向に向けて延設された内腔が複数形成され、１つの内腔によって導電性ワイヤが挿通される導電性ワイヤルーメン、他の少なくとも１つの内腔によって前記シース本体を補強するための補強部材を設けた補強ルーメンがそれぞれ形成されるとともに、前記シース本体の先端部近傍の外周面に形成されたワイヤ導出口から前記導電性ワイヤが前記シース本体の外部側に導出され、前記導電性ワイヤにおける前記シース本体の外部側の露出部によって高周波切開用のナイフ部が形成される内視鏡用高周波切開装置において、前記補強部材を、前記シース本体の基端部近傍から基端部側の前記ワイヤ導出口近傍までの範囲に設けているので、上記構成により、シースが硬くなることで、作動時のシースの撓みを防止し、良好な作動性を確保できる。

【０１１１】また、細い管腔もしくは内視鏡のチャンネルへの挿入、押し込み時にもシースが過度に撓んでしまうことなく、良好な挿入性を確保できる。更に、シースのナイフ部分は柔らかいので、チューブ先端の湾曲が容易に行え、より良好な作動性を確保できる。また、シース先端部も柔らかいため、生体に損傷を与えず、安全にこの装置を使用することができる。

【０１１２】また、内視鏡の処置具挿通チャンネル内を挿通可能な電気絶縁性シースのシース本体内に軸心方向に向けて延設された内腔が複数形成され、１つの内腔によって導電性ワイヤが挿通される導電性ワイヤルーメン、他の少なくとも１つの内腔によって前記シース本体を補強するための補強部材を設けた補強ルーメンがそれぞれ形成されるとともに、前記シース本体の先端部近傍の外周面に形成されたワイヤ導出口から前記導電性ワイヤが前記シース本体の外部側に導出され、前記導電性ワイヤにおける前記シース本体の外部側の露出部によって高周波切開用のナイフ部が形成される内視鏡用高周波切開装置において、前記補強部材を、前記シース本体の基端部近傍から基端部側の前記ワイヤ導出口近傍までの範囲に設けるとともに、前記補強部材を設けた部分のシースを曲げたときに、前記ナイフ部と前記シースの中心軸を結んで形成される第１平面に沿った曲げ抵抗よりも、前記シースの中心軸を通り、前記第１平面に垂直方向を向いた第２平面に沿った曲げ抵抗の方が大きくなるよう、前記補強部材を前記シースの中心軸に対して、偏らせて設けているので、前述の良好な作動性、挿入性、安全性が確保できるだけではなく、補強部材によりナイフ基端部シースの曲げ方向が規制されるため、内視鏡に対する、安定したナイフの方向性を実現することができる。

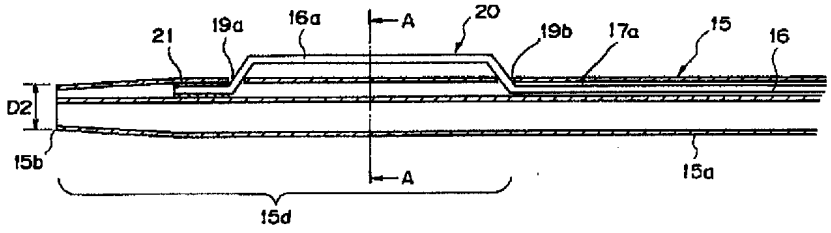
【図面の簡単な説明】

【図１】本発明の第１の実施の形態の内視鏡用高周波切開装置の全体を示す外観図。

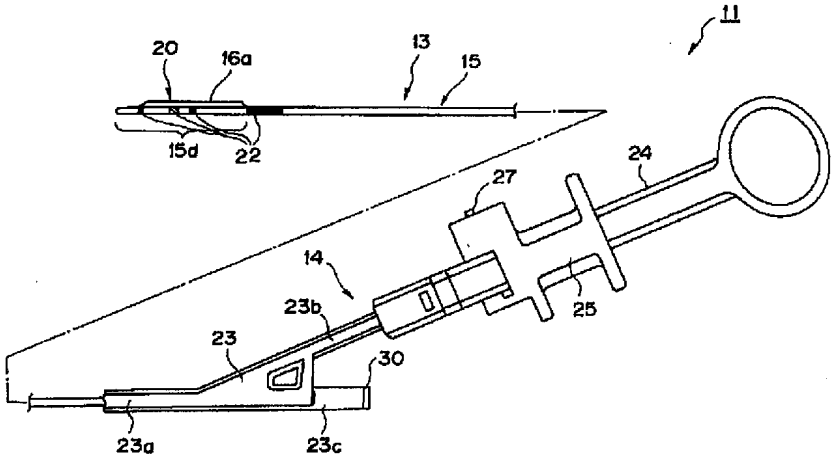
【図２】シースの先端側の構造を示す断面図。
【図３】図２のＡ－Ａ線断面及び図４のＤ－Ｄ線断面を拡大して示す図。
【図４】図３（Ａ）のＣ－Ｃ線断面でシースの先端側の構造を示す図。
【図５】シースの手元側の断面構造及びＥ部を拡大して示す図。
【図６】経内視鏡的に乳頭括約筋を切開する作用の説明図。
【図７】図６とは異なる手技で経内視鏡的に乳頭括約筋を切開する作用の説明図。
【図８】図６における実際に観察した際の内視鏡像を示す図。
【図９】本発明の第２の実施の形態におけるシースの先端側の構造を示す断面図。
【図１０】図９のＡ′－Ａ′線断面及び図１１のＤ′－Ｄ′線断面を拡大して示す図。
【図１１】図１０（Ａ）のＨ－Ｈ、及びＩ－Ｉ線断面でシースの先端側の構造を示す図。
【図１２】シース先端側を斜め方向から見た外観図。
【図１３】本発明の第３の実施の形態におけるシースの先端側の構造を示す断面図。
【図１４】図１３のＡ″－Ａ″線断面、図１５のＤ″－Ｄ″線断面、及び図１６のＧ－Ｇ線断面を拡大して示す図。
【図１５】図１４（Ａ）のＨ′－Ｈ′線断面でシースの先端側の構造を示す図。
【図１６】図１４のＩ′－Ｉ′線断面でシースの先端側の構造を示す図。
【図１７】本発明の第４の実施の形態の内視鏡用高周波切開装置の全体を示す構成図。
【図１８】採石バスケット鉗子を示す側面図。
【図１９】多目的ルーメン内に採石バスケット鉗子を収納した状態でのシースの先端側の構成を示す断面図。
【図２０】採石バスケット鉗子を用いて結石の回収の処置を行う使用例を示す説明図。
【図２１】本発明の第５の実施の形態の内視鏡用高周波切開装置の全体を示す構成図。
【図２２】採石バスケット鉗子のワイヤ部及び操作部を示す図。
【図２３】本発明の第６の実施の形態及びその変形例の内視鏡用高周波切開装置のシース先端側の構成を示す図。

【符号の説明】
１１…内視鏡用高周波切開装置
１２…内視鏡
１３…挿入部
１４…操作部
１５…シース
１５ａ…シース本体
１５ｂ…細径部
１５ｃ…シース基端部
１５ｄ…シース先端部
１６…導電性ワイヤ
１７ａ…ワイヤルーメン
１７ｂ…多目的ルーメン
１７ｃ…補強ルーメン
１７ｄ…補強ルーメン
１８…補強ワイヤ
１９ａ，１９ｂ…ワイヤ導出口
２０…ナイフ部
２１…Ｘ線不透過パイプ
２２…マーキング部
２３…連結部材
２４…操作部本体
２５…スライダ
２６…操作パイプ
２７…プラグ
２８…操作パイプルーメン
２９…分岐多目的ルーメン
３０…雌ルアー口金
４１…十二指腸
４２…乳頭
４３…胆管
Ｐ…中心軸
Ｑ…Ｑ平面
Ｒ…Ｒ平面

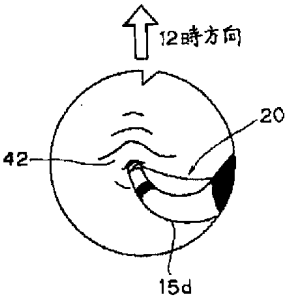
【図２】



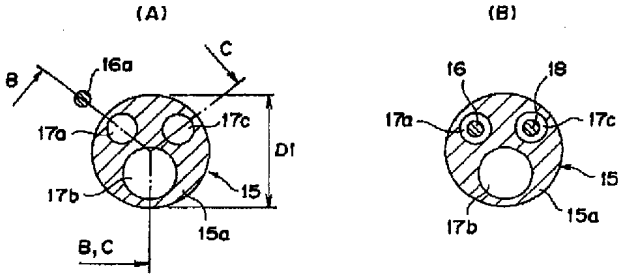
【図１】


11
20
16a
13
15
15d
22
24
27
14
23b
25
23
30
23a
23c

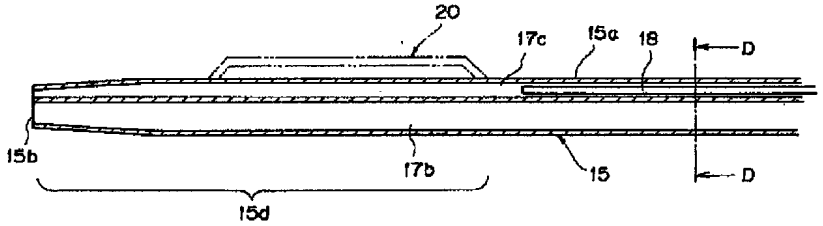
【図８】


12時方向
20
42
15d

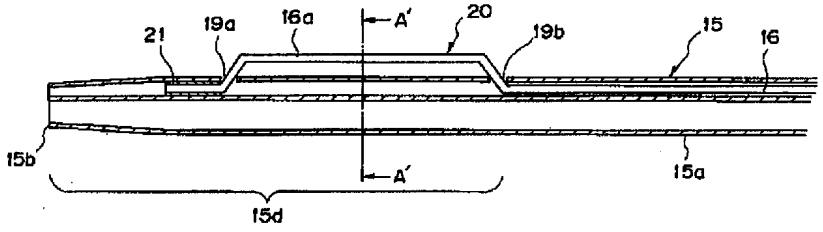
【図３】


(A)
(B)
B
16a
C
17a
17c
D1
17b
15
15a
B,C
16
18
17a
17c
15
17b
15a

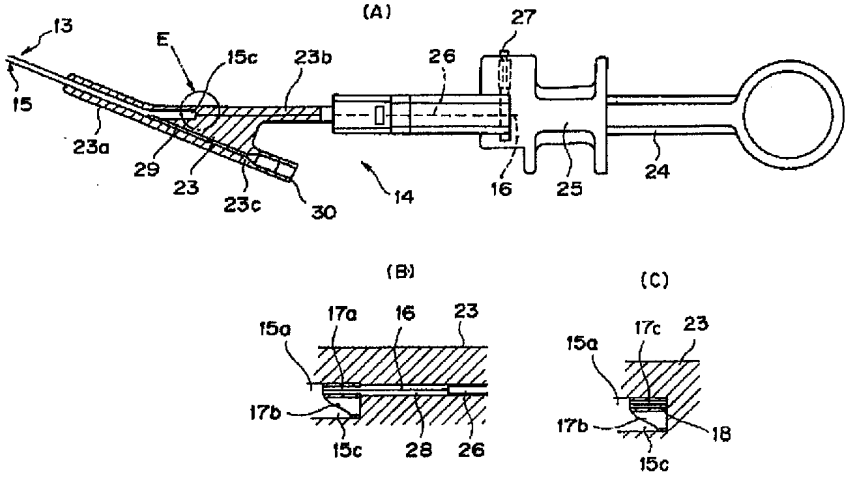
【図４】


20
17c
15a
18
D
15b
17b
15
D
15d

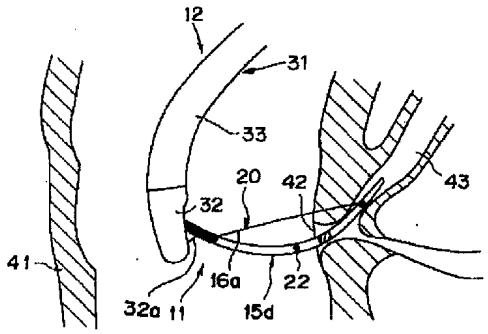
【図９】


21
19a
16a
A'
20
19b
15
16
15b
A'
15a
15d

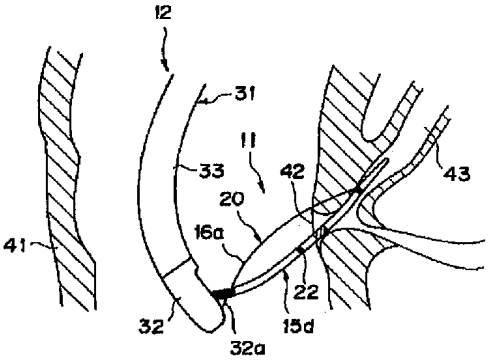
【図5】



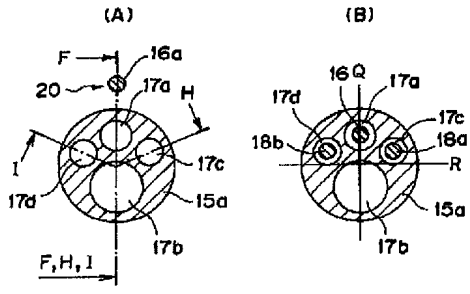
【図6】



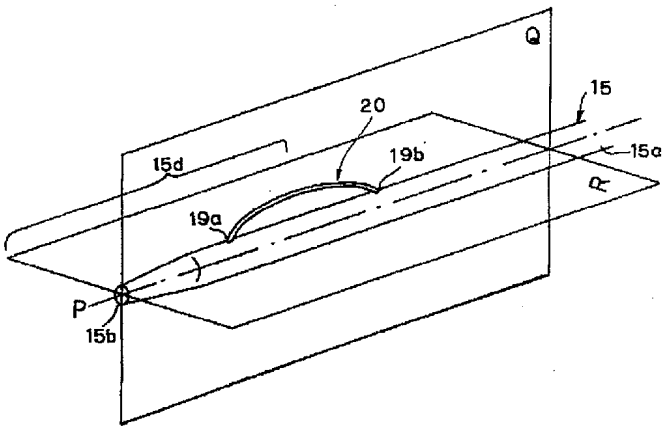
【図7】



【図10】



【図12】



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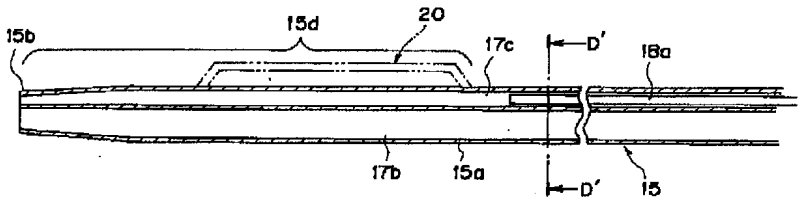

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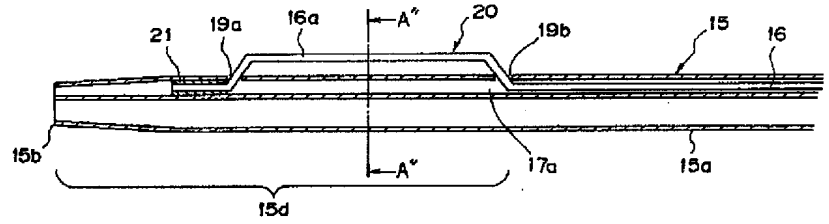

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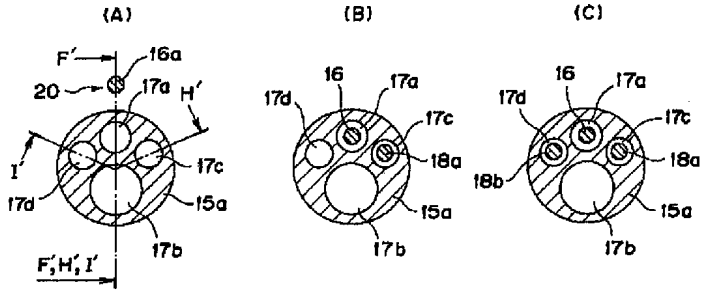

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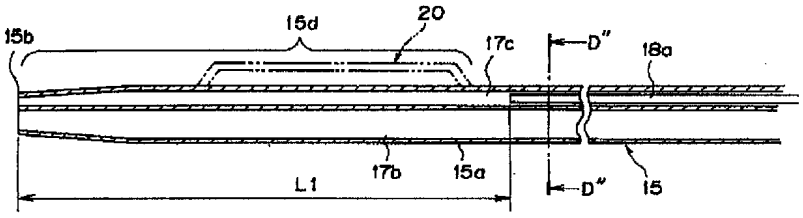

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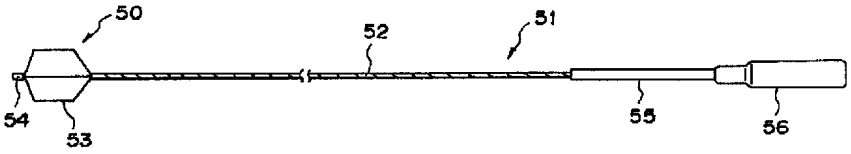

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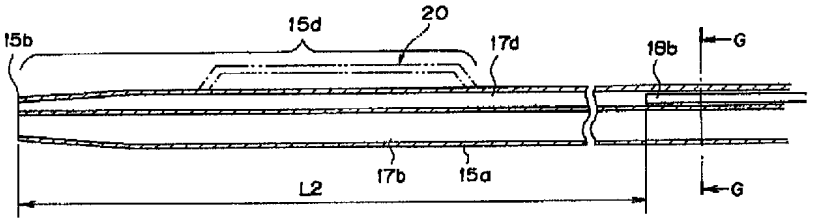
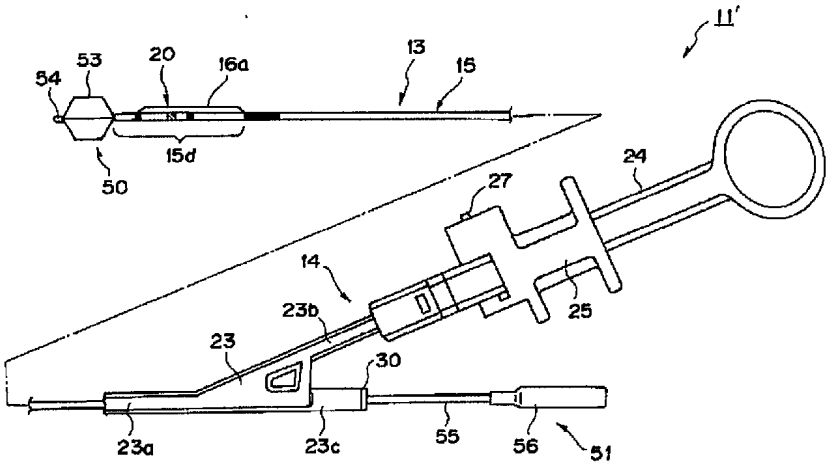
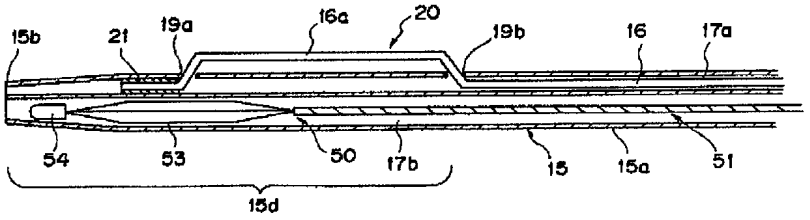

15b
15d
20
17d
18b
G
17b
15a
L2
G

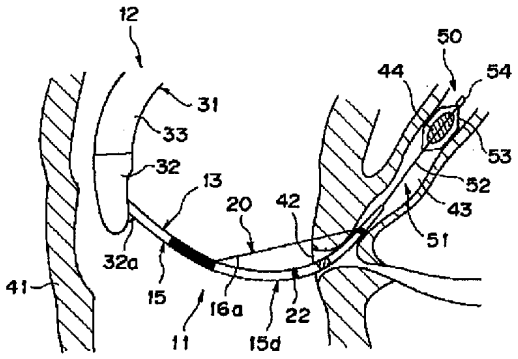
【図17】


11'
53
20
16a
13
15
54
15d
50
24
27
14
23b
25
23
30
23a
23c
55
56
51

【図19】


15b
21
19a
16a
20
19b
16
17a
54
53
50
17b
15
15a
51
15d

【図20】


12
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44
54
31
33
53
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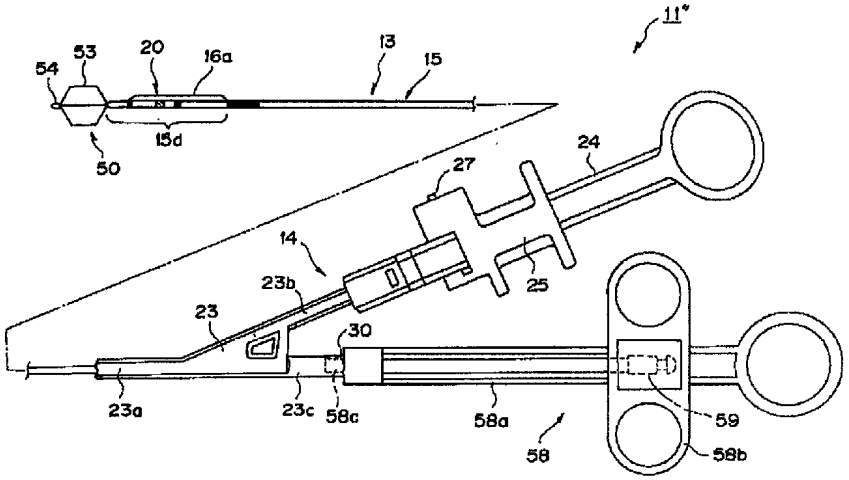
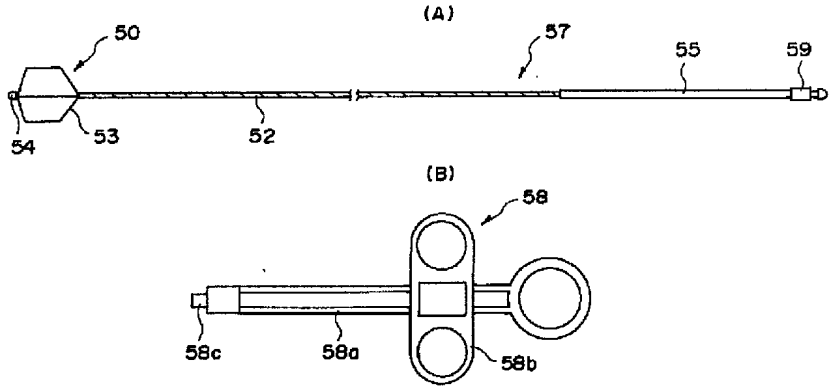
52
20
42
43
51
32a
15
16a
22
41
11
15d

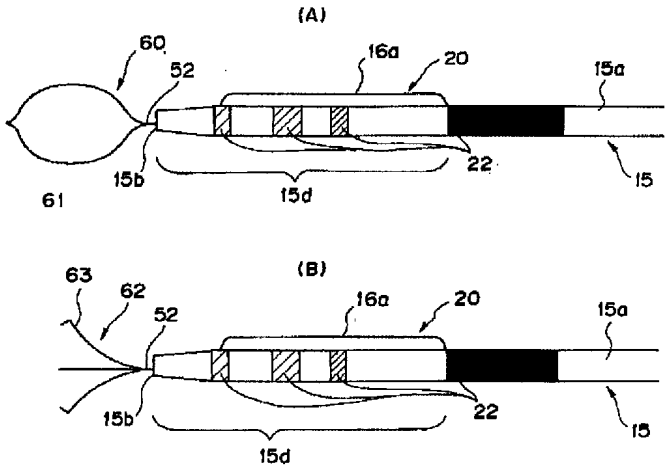
【図21】


11'
53
20
16a
13
15
54
15d
50
24
27
14
25
23b
23
30
23a
23c
58c
58a
59
58
58b

【図22】


(A)
50
57
55
59
54
53
52
(B)
58
58c
58a
58b

【図23】


(A)
60
52
16a
20
15a
15b
22
15
61
15d
(B)
63
62
52
16a
20
15a
15b
22
15
15d

* NOTICES *

1.This document has been translated by computer. So the translation may not reflect the original precisely.
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

CLAIMS

[Claim(s)]
[Claim 1]Two or more lumens installed towards an axial center direction in a sheath body of an electric insulation sheath which can insert in inside of a treatment tool insertion channel of an endoscope are formed, A reinforcement lumen which provided a reinforcing member for reinforcing said sheath body by a conductive wire lumen and other at least one lumen in which a conductive wire is inserted by one lumen is formed, respectively, and. Said conductive wire is drawn from a wire derivation port formed in a peripheral face near the tip part of said sheath body by outer side of said sheath body, In a high frequency incision device for endoscopes with which a knife part for high frequency incision is formed in an outer side of said sheath body in said conductive wire of an exposed part, A high frequency incision device for endoscopes providing said reinforcing member in the range of from [near the base end of said sheath body] up to near [said] the wire derivation port by the side of a base end.
[Claim 2]Two or more lumens installed towards an axial center direction in a sheath body of an electric insulation sheath which can insert in inside of a treatment tool insertion channel of an endoscope are formed, A reinforcement lumen which provided a reinforcing member for reinforcing said sheath body by a conductive wire lumen and other at least one lumen in which a conductive wire is inserted by one lumen is formed, respectively, and. Said conductive wire is drawn from a wire derivation port formed in a peripheral face near the tip part of said sheath body by outer side of said sheath body, In a high frequency incision device for endoscopes with which a knife part for high frequency incision is formed of an exposed part of an outer side of said sheath body in said conductive wire, Provide said reinforcing member in the range of from [near the base end of said sheath body] up to near [said] the wire derivation port by the side of a base end, and. When a sheath of a portion which provided said reinforcing member is bent, rather than flexing resistance along the 1st flat surface that connects a medial axis of said sheath to said knife part, and is formed. A high frequency incision device for endoscopes

having biased said reinforcing member and providing it to a medial axis of said sheath so that it may pass along a medial axis of said sheath and a direction of flexing resistance along the 2nd flat surface that turned to said 1st flat surface perpendicularly may become large.

[Translation done.]

* NOTICES *

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DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Field of the Invention]It passes through this invention, it is endoscopically inserted into the abdominal cavity, and relates to a body tissue and the high frequency incision device for endoscopes which cuts a duodenal-papilla sphincter muscle open according to the high frequency current especially.
[0002]
[Description of the Prior Art]There is a high frequency incision instrument indicated by JP,5-7597,A and JP,5-68685,A. Such a high frequency incision instrument is what exposed the conductive wire inserted into the lumen of a tube to the external wall surface of the tube tip part, and formed the knife part, By pulling a conductive wire by operation by the side of a hand, a tube tip part is incurvated to an arc shape, a knife part is pressed against a treated area, and the high frequency current cuts it open. Such a high frequency incision instrument uses the comparatively soft tube in order to make the curve of a tube tip part easy.
[0003]There is an instrument indicated by JP,6-53125,B, and in order to control the incision direction of a sphincter muscle, the strengthening means of the rectangular section is formed, having applied this instrument to the range of a end face portion from the tip end part in one lumen of a tube.
[0004]
[Problem(s) to be Solved by the Invention]When the operation by the side of a hand pulls a conductive wire and a tube tip part is incurvated to an arc shape in the high frequency incision instrument indicated by JP,5-7597,A and JP,5-68685,A, since the tube is soft, some curve easily, but. Since a tube covered an overall length and bent in shaft orientations, there was a problem of the operation nature that a tube tip part cannot be curved easily, with the frictional resistance of a conductive wire and the lumen of a tube.

[0005]Also when pushing in such a high frequency incision instrument in the treatment tool insertion channel of an endoscope, and the thin lumen in the abdominal cavity, the tube bent in shaft orientations, and the pushing operation of the tube at hand did not get across to a tip part well, but there was a problem that insertion nature worsened.
[0006]Here, when performing what is called EST that cuts a duodenal-papilla sphincter muscle open using such a high frequency incision instrument for endoscopes, generally, it is used with a curving mechanism and the back strabism type endoscope provided with the ******** top device.
[0007]First, an endoscope is inserted into the duodenum and front view of the mammary papilla is carried out by the curving operation of an endoscope. Next, from the channel for treatment implement insertion of an endoscope, the high frequency incision instrument for endoscopes is inserted, and the high frequency incision instrument for endoscopes is inserted into a bile duct from mammary papilla by operation of the ******** top device of an endoscope, and curving operation. And by operation by the side of the hand of the high frequency incision instrument for endoscopes, a conductive wire is pulled, a tube tip part is incurvated to an arc shape, a knife part is pressed at least against sphincter muscles of teat, and the high frequency current cuts it open.
[0008]An endoscope image [in / for signs that EST at this time is performed / drawing 6 and drawing 6] is shown in drawing 8. As shown in drawing 6, in order to carry out front view of the mammary papilla, it is necessary from an anatomical standpoint to incurvate the bend of an endoscope so that the center of the curve may come to the line of sight of an endoscope. The high frequency incision instrument for endoscopes is put in in the visual field range of an endoscope, and in order to make a tip part easy to insert into a bile duct, it is necessary to raise the high frequency incision instrument for endoscopes to the line of sight of an endoscope by operation of a ******** top device.
[0009]As shown in drawing 8, in order to enforce EST safely without complication, it is necessary to add incision in above [of space], and the 12:00 direction within what is called an endoscope view. therefore, the standing direction of the endoscope high frequency incision instrument according to the curving direction and treatment implement erection device of an endoscope as shown in drawing 6, when enforcing EST -- and, The knife part at the tip of a tube will be mostly placed on the same flat surface, and the tube tip part of an endoscope high frequency incision instrument will present the curved shape which turned the knife part inside.
[0010]It imitates to the above-mentioned tube curved shape here, and when an endoscope high frequency incision instrument is sent from an endoscope tip by bending so that a knife part may be suitable inside at the tip of a tube, and attaching a peculiarity, medical practitioners are devising so that direction of a knife part may turn to and come out of the direction which it will be at 12:00 within a view of an endoscope. That is, stability can aim at

direction of a knife part by making the bend peculiarity of a tube agree to the curved shape of an endoscope, and direction of a treatment implement erection device.

[0011]The bend peculiarity work of the tube tip by this medical practitioner could not be performed by having been stabilized each time here, therefore there was a problem that the directivity of the knife part to an endoscope was not stabilized.

[0012]The strengthening means in the instrument indicated by JP,6-53125,B formed in the lumen of a tube, Since a tube overall length is covered and it is firmly reinforced when JP,5-7597,A and an endoscope high frequency incision instrument like JP,5-68685,A are made to suit, it is thought that the problem of the operation nature by bending of the tube overall length of the above-mentioned endoscope high frequency incision instrument and insertion nature is solved for how many minutes.

[0013]Since the direction at which a tube turns agrees to the curved shape of an endoscope, and direction of a treatment implement erection device by the tube bend direction regulation by the reinforced component in the instrument of JP,6-53125,B, it is thought that the problem of the directivity of a knife part is solved.

[0014]However, in the instrument of JP,6-53125,B. Since the reinforced component is provided also in the lumen of the knife part at the tip of a tube, when incurvating a tube tip part to an arc shape, a reinforced component serves as resistance (resistance which bars bending) of bending, and the problem of the operation nature that a tube tip part cannot be curved easily is not solved after all.

[0015]Since the tube tip part is hard, when inserting a tube tip into a bile duct from mammary papilla, it is easy to do damage near a papillary area and to a bile duct wall, the danger of producing punching and serious complication, such as bleeding, becomes high, and a problem comes out at safety.

[0016]this invention was made in view of the point mentioned above, and cancels the problem of a Prior art, its operation nature is good, and can improve a channel or insertion nature in the living body, and it aims at providing the high frequency incision device for endoscopes excellent in the safety which does not inflict damage on a living body.

[0017]Other purposes of this invention are to provide the high frequency incision device for endoscopes with the directivity of the stable knife part to an endoscope. Other purposes of this invention have the technique in providing the easy high frequency incision device for endoscopes.

[0018]

[Means for Solving the Problem]Two or more lumens installed towards an axial center direction in a sheath body of an electric insulation sheath which can insert in inside of a treatment tool insertion channel of an endoscope are formed, While a reinforcement lumen which provided a reinforcing member for reinforcing said sheath body by a conductive wire lumen and other at

least one lumen in which a conductive wire is inserted by one lumen is formed, respectively, Said conductive wire is drawn from a wire derivation port formed in a peripheral face near the tip part of said sheath body by outer side of said sheath body, In a high frequency incision device for endoscopes with which a knife part for high frequency incision is formed, said reinforcing member was provided in the range of from [near the base end of said sheath body] up to near [said] the wire derivation port by the side of a base end by an exposed part of an outer side of said sheath body in said conductive wire.

[0019]By the above-mentioned composition, bending of a sheath at the time of an operation is prevented, and good operation nature can be secured because a sheath becomes hard. Good insertion nature can be secured without a sheath bending too much also at the time of insertion to a thin channel of a lumen or an endoscope, and pushing. Since a knife portion of a sheath is soft, a sheath tip can be curved easily and better operation nature can be secured. Since a sheath tip part is also soft, damage cannot be inflicted on a living body but this device can be used safely.

[0020]Two or more lumens installed towards an axial center direction in a sheath body of an electric insulation sheath which can insert in inside of a treatment tool insertion channel of an endoscope are formed, While a reinforcement lumen which provided a reinforcing member for reinforcing said sheath body by a conductive wire lumen and other at least one lumen in which a conductive wire is inserted by one lumen is formed, respectively, Said conductive wire is drawn from a wire derivation port formed in a peripheral face near the tip part of said sheath body by outer side of said sheath body, In a high frequency incision device for endoscopes with which a knife part for high frequency incision is formed of an exposed part of an outer side of said sheath body in said conductive wire, While providing said reinforcing member in the range of from [near the base end of said sheath body] up to near [said] the wire derivation port by the side of a base end, When a sheath of a portion which provided said reinforcing member is bent, it passes along a medial axis of said sheath rather than flexing resistance along the 1st flat surface that connects a medial axis of said sheath to said knife part, and is formed, To a medial axis of said sheath, said reinforcing member was biased and was provided so that a direction of flexing resistance along the 2nd flat surface that turned to said 1st flat surface perpendicularly might become large.

[0021]The above-mentioned good operation nature, insertion nature, and safety can not only be securable, but by the above-mentioned composition, since a bending direction of a knife base end sheath makes it regulate by a reinforcing member, the directivity of a stable knife over an endoscope is realizable.

[0022]

[Embodiment of the Invention]Hereafter, a 1st embodiment of this invention is described with reference to drawing 1 - drawing 8. Drawing 1 shows the appearance of the whole high

frequency incision device for endoscopes (what is called EST) which cuts open the body tissue, especially duodenal-papilla sphincter muscle in the abdominal cavity using the high frequency current, Drawing 2 shows the structure by the side of the tip of a sheath with a sectional view, and drawing 3 expands and shows the A-A line section of drawing 2, and the D-D line section of drawing 4, Drawing 4 shows the structure by the side of the tip of a sheath in the C-C line section of drawing 3 (A), drawing 5 expands and shows the section structure and the E section by the side of the hand of a sheath, and drawing 6 thru/or drawing 8 show the explanatory view of the operation through which it passes and which is endoscopically cut open. Drawing 2 shows the tip side of the sheath in the vertical section of the B-B line of drawing 3 (A). Drawing 8 shows the actual endoscope image in drawing 6.

[0023]As shown in drawing 1, a high frequency incision device for endoscopes of a 1st embodiment of this invention. (It is only hereafter described also as an incision device) The insert portion 13 of the narrow diameter which has the flexibility inserted in a patient's inside of the body through the treatment tool insertion channel in which the endoscope 12 (refer to drawing 6, drawing 7, and drawing 20) does not illustrate 11, It is allocated in the base end side of this insert portion 13, and comprises the final controlling element 14 by the side of a hand for a way person to operate this incision device 11 outside a patient's body.

[0024]The insert portion 13 of this incision device 11 comprises the sheath 15 formed by the member which has insulation electrically as shown in drawing 2. The main part (getting it blocked sheath body) 15a of this electrical insulation sheath 15, It has insulation electrically, and it is formed by products made of fluororesin, such as the resin which has thermoplasticity, for example, PTFE, and FEP, and is formed in this embodiment by the flexible porous tube which has three lumens (lumen).

[0025]Namely, the wire lumen 17a which inserts in the conductive wire 16 which has conductivity, such as a metal wire, in the sheath body 15a as shown in drawing 3 (A) and (B), The multiple-purpose lumen 17b which has sufficient inside diameter which does not have offense in the insertion of a guidewire and/or pouring of a fluid (especially contrast medium) which are not illustrated (convenient), Three lumens with the reinforcement lumen 17c which inserts in the reinforcement wire 18 for reinforcing the sheath body 15a are provided, and it is installed towards the axial center direction (getting it blocked longitudinal direction of the sheath body 15a), respectively.

[0026]In the wire lumen 17a in the sheath body 15a, as shown in drawing 2, the conductive wire 16 is inserted in here, A guidewire is inserted in in the multiple-purpose lumen 17b, or the liquid-sending way where a fluid is poured in is formed, and the opening of the tip of the multiple-purpose lumen 17b is carried out.

[0027]moreover -- the inside of the reinforcement lumen 17c -- reinforcing members, such as metal, and the sheath tip part 15d which the reinforcement wire 18 made from stainless steel

with large hardness more specifically shows to drawing 4 from a sheath base end (refer to drawing 5 (C)) also with a narrow diameter -- it is being immediately inserted in and fixed to the end face.

[0028]Although the knife part 20 does not appear in drawing 4, In order to make intelligible relative physical relationship in the axial center direction of the position by the side of the tip of the reinforcement wire 18, and the knife part 20, the two-dot chain line showed the knife part 20 (the two-dot chain line shows the knife part 20 in the same meaning also at other drawing 11, drawing 15, and drawing 16).

[0029]Also with a narrow diameter, since that hardness is large, this reinforcing member and the reinforcement wire 18 of the product made from stainless steel more specifically can fully adjust the degree (it is described also as pliability or softness) of the ease of bending of the sheath body 15a with the reinforcement wire 18 of an outer diameter small enough. For this reason, the cross-section area of the reinforcement lumen 17c in the section of the sheath body 15a and the reinforcement wire 18 has a merit by which it can be managed even if small enough.

[0030]The reinforcement wire 18 made from this stainless steel also has a function of radiopacity, and can also perform the check of the position of the sheath body 15a (strictly reinforcement wire 18) under X-ray irradiation.

[0031]The reinforcement lumen 17c was formed in the sheath body 15a in this way, the reinforcement wire 18 was inserted in, and that whose sheath body 15a is too (or it bends too much) soft is reinforced with this embodiment so that it may become moderate softness.

[0032]And in the case of a sheath which is easily buckled by this reinforcement when inserting in in the treatment tool insertion channel of the endoscope 12, and the thin abdominal cavity, it also receives, It is made the sheath 15 which lessens the excessive ease of bending more and has moderate pliability, Also when inserting in the thin treatment tool insertion channel or living body of the endoscope 12, it has been the feature to have secured the insertion nature which can be inserted in easily without fully telling the pushing operation of the hand of the sheath body 15a to the sheath tip part 15d, and buckling the sheath 15.

[0033]The sheath tip part 15d is curving operation (it has the feature that it can operate.) easily, when the damage to the living body at the time of a sheath being soft and inserting in the living body incurvates the sheath tip part 15d and makes the knife part 20 form with ** by prevention, since it is not reinforced.

[0034]The two wire derivation ports 19a and 19b whose insertion of the wire lumen 17a is enabled are formed in the peripheral face of the tip part 15d of the sheath body 15a, i.e., a sheath tip part. These wire derivation ports 19a and 19b are established in two positions along the shaft orientations of the sheath body 15a approximately.

[0035]And the tip side of the conductive wire 16 inserted in in the wire lumen 17a of the sheath

body 15a, It is drawn from the two wire derivation ports 19a and 19b established in the sheath tip part 15d by the outer side of the sheath body 15a, and the knife part 20 for high frequency incision is formed of the wire exposed part 16a exposed to the outer side of this sheath body 15a. In this specification, as shown in drawing 2, from the apical surface of the sheath 15 to the back end of the knife part 20 is called the sheath tip part 15d.

[0036]Here, the conductive wires 16 are metal and a flexible wire of the product made from stainless steel more specifically. The tip part of this conductive wire 16 on metal and a twist concrete target. It is inserted in the lumen of the product made from stainless steel, metal, silver, platina **, and the radiopacity pipe 21 made from tungsten (what was made into pipe shape by the radiopacity member), It is being fixed by an adhesive agent (specifically soldering, brazing, adhesion), welding (especially laser welding, plasma arc welding), or other means.

[0037]The outside diameter size of the radiopacity pipe 21 is set up become large slightly rather than the inner diameter dimension of the wire lumen 17a of the sheath body 15a. And this radiopacity pipe 21 is being further fixed by press fit, adhesion, or other means in the wire lumen 17a by the side of a tip rather than the front wire derivation port 19a.

[0038]It is made easy to insert by forming in the uppermost tip part of the sheath body 15a the thin diameter section 15b which has the outside diameter size D2 smaller than the outside diameter size D1 of the pars intermedia of the sheath body 15a.

[0039]As shown in drawing 1, the marking part 22 to which two or more marking was performed is formed in the peripheral face near the tip part of the sheath body 15a along the axial center direction of the sheath body 15a, and it can be made to perform grasp of the length of an outline by this marking part 22.

[0040]Next, the final controlling element 14 of the incision device 11 is explained. As shown in drawing 1 and drawing 5 (A), the abbreviated Y character-like connecting member 23 is formed in this final controlling element 14. The common connecting part 23a is formed in the tip part side of this connecting member 23, and, as for the rear end part side, the branch connection parts 23b and 23c which branched to two are formed. And the base end side of the insert portion 13 is inserted and connected in the lumen of the common connecting part 23a.

[0041]The operating section body 24 is being fixed to the back end of one branch connection part 23b of the connecting member 23. The slider 25 slides to the longitudinal direction of this operating section body 24, and this operating section body 24 is equipped with it movable. The base end of the conductive wire 16 is being fixed to this slider 25 via the conductive operation pipe 26 (refer to drawing 5 (B)) and the conductive plug 27.

[0042]It is connected to an RF generator device via the electrical cable which is not illustrated, and by turning on a foot switch etc., the high frequency current can flow into the conductive wire 16 from an RF generator device, and this plug 27 can cut a body tissue open by the knife

part 20.

[0043]The operation pipe lumen 28 with the operation pipe 26 movable forward and backward opened for free passage by the wire lumen 17a of the sheath body 15a as shown in drawing 5 (B) at the connecting member 23, The branching multiple-purpose lumen 29 which is open for free passage in the multiple-purpose lumen 17b of the sheath body 15a as shown in drawing 5 (A) is formed. The wall around the multiple-purpose lumen 17b cuts and lacks near the back end of the sheath body 15a, and is opening it for free passage with the outside branching multiple-purpose lumen 29.

[0044]Here, the operation pipe lumen 28 is formed in one branch connection part 23b side of the connecting member 23, and the branching multiple-purpose lumen 29 is formed in the branch connection part 23c side of another side of the connecting member 23. Since the glass syringe which pours in a contrast medium etc. is fixed enabling free attachment and detachment, the female-lures cap 30 is formed in the end piece of the branching multiple-purpose lumen 29. It is also possible to insert a guidewire in this female-lures cap 30, and it is used also when insertion of a guidewire performs insertion to a target part easily.

[0045]Drawing 5 (C) shows the section which passes along the reinforcement lumen 17c in the E section of drawing 5 (A). the sheath tip part 15d shown in drawing 4 from the sheath base end 15c of the back end of the sheath body 15a shown in this drawing 5 (C) by this embodiment -- the reinforcement wire 18 is immediately inserted in in the reinforcement lumen 17c to the base end.

[0046]Next, it passes through an operation of the high frequency incision device 11 for endoscopes of the above-mentioned composition, it is endoscopically inserted into the abdominal cavity, and it explains by the case where the high frequency current cuts open a lumen part exit like a body tissue, especially a duodenal-papilla part.

[0047]First, in the state where the high frequency incision device 11 for endoscopes is not used, the slider 25 of the final controlling element 14 is held in the position in readiness moved to the front end side to the operating section body 24. At this time, the tip part of the sheath body 15a is held, after approximately linear shape has developed.

[0048]In this state, from the tip of the sheath body 15a to the range of about 15 cm, it bends to an approximate circle arc and a peculiarity is attached so that the knife part 20 may turn to the inside.

[0049]In this state, as shown in drawing 6, the insert portion 13 of the incision device 11 is inserted in the treatment tool insertion channel which was beforehand provided in the endoscope inserting part 31 of the endoscope 12 inserted into the duodenum 41 and which is not illustrated, The insert portion 13 of the incision device 11 is made to project to an outer side from the tip opening of the treatment tool insertion channel provided in the tip part 32 of the endoscope inserting part 31.

[0050]In this case, by an approximate circle arc's bending to the sheath tip part 15d, and attaching a peculiarity to it, As direction into this bend peculiarity agrees and it is shown in drawing 8 to the curved shape of the tip part 32 of the endoscope inserting part 31, and direction of the treatment implement erection device 32a, direction of the knife part 20 can project toward the direction (above [in space]) which it will be at 12:00 within the view of an endoscope.

[0051]In this case, since it is made hard to bend rather than the case where have formed the reinforcement wire 18 in those shaft orientations at the sheath body 15a, and the reinforcement wire 18 is not formed, The sheath body 15a can be inserted in easy and a short time, without pushing of the hand of sheath body a sheath tip-part 15d Stroking, fully being told at the time of insertion, and buckling the sheath body 15a, even when an inside diameter is a small treatment tool insertion channel.

[0052]Then, the tip part of the insert portion 13 of the incision device 11 is inserted into the bile duct 43 from the mammary papilla 42 by the curving operation of the bend 33 of the endoscope inserting part 31, operation of the ******** top device 32a formed in the tip opening of the tip part 32 on **, or aggressiveness length operation of the insert portion 13 whole of the incision device 11.

[0053]Also in this case, the sheath body 15a located in a treatment tool insertion channel, Bending of the sheath portion which has come out of the treatment tool insertion channel of the endoscope 12 decreases, and pushing of the hand of the sheath body 15a is fully told to the sheath tip part 15d, and it can insert easily also into mammary papilla with a small inside diameter, without buckling the sheath body 15a.

[0054]Since the sheath tip part 15d is not reinforced, its sheath is soft, and there are few dangers of being accompanied by punching and the complication of bleeding, without doing damage near mammary papilla and to bile duct 43 wall.

[0055]Then, the glass syringe which is not illustrated if needed to the female-lures cap 30 by the side of the branch connection part 23c of the connecting member 23 is attached. And the contrast medium poured in from this glass syringe is sent in the bile duct 43 through the branching multiple-purpose lumen 29 and the multiple-purpose lumen 17b of the sheath body 15a, and imaging in the bile duct 43 is performed.

[0056]Next, the marking part 22 of the peripheral face of the tip part of the sheath body 15a is followed as a rule of thumb, and the immersion depth to the mammary papilla 42 of the sheath body 15a is adjusted. Also in this case, since pushing of the hand of the sheath body 15a is fully told to the sheath tip part 15d, it can insert easily.

[0057]Next, the slider 25 of the final controlling element 14 is moved to the back end side to the operating section body 24. Since it is operated so that the conductive wire 16 may be pulled with operation of this slider 25 at the hand side, The wire exposed part 16a which

curved to the approximate circle arc as the tip part of the sheath body 15a showed drawing 6, and was exposed to the outer side of the sheath body 15a as a result is restricted to the arc of a bow, and the knife part 20 is formed.

[0058]In this case, since it is not reinforced with the reinforcement wire 18, the sheath tip part 15d (wire exposed part 16a) has a soft sheath, when the tip part of the sheath body 15a curves, can curve easily and can realize good operation nature.

[0059]If the slider 25 of the final controlling element 14 is moved to the tip side to the operating section body 24 as an option, as shown in drawing 7, the conductive wire 16 will be pushed and the circular knife part 20 will be formed.

[0060]the arc of a bow -- or the high frequency current is circularly energized to the knife part 20 after forming the knife part 20, and sphincter muscles of teat are cut open to above [of the space in drawing 8] (the 12:00 direction within the view of the endoscope 12). If incision is completed, the slider 25 will be returned to the original position and the incision device 11 will be drawn out from the treatment tool insertion channel of the endoscope 12.

[0061]The effect of this embodiment is as follows. Since according to this embodiment the pliability of the sheath body 15a is reinforced with the reinforcement wire 18 and pliability is making it less moderate pliability, At the time of insertion into the treatment tool insertion channel of the endoscope 12, and a thin lumen, pushing of the hand of the sheath body 15a is fully told to the sheath tip part 15d, and improvement in insertion nature can be realized.

[0062]moreover -- according to this embodiment -- the reinforcement wire 18 -- a sheath base end to the sheath tip part 15d -- it being reinforced and immediately, to near the wire derivation port by the side of a base end, When the sheath tip part 15d is not reinforced, but the damage to the living body at the time of inserting in the living body can be prevented since the sheath is softer than a reinforcing part, and curving the sheath tip part 15d, it can curve easily and good operation nature can be realized.

[0063]Since it can form only by putting in a stainless wire in the reinforcement lumen 17c, an assembly can be done simply and it can manufacture cheaply. The localization of the sheath body 15a under X-ray irradiation can also be performed by considering it as the member of radiopacity, such as a stainless wire, as this reinforcement wire 18.

[0064]Since according to this embodiment the pliability of the sheath body 15a is reinforced with the reinforcement wire 18 and pliability is made to less moderate pliability, buckling can be effectively prevented from fully occurring in the case of insertion also to the case of the sheath body of a narrow diameter. For this reason, it becomes possible to insert in in a treatment tool insertion channel etc. and to take incision measures also in the case of the sheath body made more into the narrow diameter, without buckling. In this case, it can be used with the endoscope 12 of the treatment tool insertion channel of a smaller inside diameter, and what has a small outer diameter of the endoscope inserting part 31 can be used (since the thing of a

narrow diameter can be used as the endoscope inserting part 31). The pain given to the patient in the case of insertion can be reduced, and the range (use part) which can carry out insertion use can be expanded.

[0065](A 2nd embodiment) A 2nd embodiment of this invention is described with reference to drawing 9 - drawing 12 below. Drawing 9 shows the structure by the side of the tip of a sheath with a sectional view, and drawing 10 (A) and (B) expands and shows the A'-A' line section of drawing 9, and the D'-D' line section of drawing 11, Drawing 11 shows the structure by the side of the tip of a sheath by H-H and I-I ****** of drawing 10 (A), and drawing 12 shows the outline view which looked at the tip part of the incision device of this embodiment from the oblique direction. Drawing 9 shows the tip side of the sheath in the vertical section of the F-F line of drawing 10 (A).

[0066]The two reinforcement lumens 17c and 17d are formed in the sheath 15, and a different place as compared with a 1st embodiment inserts in the reinforcement wires 18a and 18b respectively into it, and is reinforced with this embodiment.

[0067]The reinforcement wires 18a and 18b are inserted to the portion immediately before the knife part 20, as shown in drawing 11 from the end face of the seeds 15.

[0068]As shown in drawing 12 here, when the flat surface which made the flat surface which connects the medial axis P of the sheath 15 to the knife part 20, and is formed Q flat surface, and passed along said medial axis P, and turned to said Q flat surface perpendicularly is made into R flat surface, With these two reinforcement wires 18a and 18b, when the sheath 15 of the portion which provided the reinforcement wire is bent, arrangement of the two reinforcement wires 18a and 18b was biased, and is arranged rather than the flexing resistance along Q flat surface, so that the direction of the flexing resistance along R flat surface may become large.

[0069]That is, so that it may understand from the sectional view of drawing 9 (B) which wrote together Q flat surface and R flat surface, Rather than the flexing resistance at the time of bending the sheath body 15a along Q flat surface used as the flat surface containing the knife part 20 (or on Q flat surface). So that the direction of the flexing resistance at the time of bending the sheath body 15a along R flat surface which is vertical to this Q flat surface, and contains a medial axis (or on R flat surface) may become large, It has been the feature to have biased the two reinforcement wires 18a and 18b so that it might become close to R flat surface (or the distance from R flat surface becomes smaller than the distance from Q flat surface like), and to arrange them.

[0070]Like the case of a 1st embodiment, first, from the tip of the sheath body 15a to the range of about 15 cm, it turns at an operation of this embodiment to an approximate circle arc, and it attaches a peculiarity so that the knife part 20 may turn to the inside. Or the work which attaches this bend peculiarity may be omitted. Next, by operation of the slider 25 of the final controlling element 14, by incurvating the tip part of the sheath body 15a several times to an

approximate circle arc, it bends to the sheath tip part 15d, and a peculiarity is attached.
[0071]It inserts in the endoscope 12 like the case of a 1st embodiment, and an outer side is made to project from the tip opening of a treatment tool insertion channel in this state. In this case, there is no bend which met R flat surface shown in drawing 12 by the difference in the flexing resistance of the above-mentioned sheath 15, and the sheath 15 is bent along Q flat surface. Therefore, as the bend direction of a sheath is regulated and it is shown in drawing 8 to the curved shape of the tip part 32 of the endoscope inserting part 31, and direction of the treatment implement erection device 32a, direction of the knife part 20 can send toward the direction (above [in space]) which it will be at 12:00 within the view of the endoscope 12. Therefore, the directional stability of the more exact knife part 20 is acquired rather than a 1st embodiment.
[0072]In addition to the effect of a 1st embodiment, the effect of this embodiment has the following effects. The directivity of the knife part 20 always projected and stabilized in the direction of 12:00 to the view of the endoscope 12 by arrangement of the two reinforcement wires 18a and 18b since the bending direction of the sheath 15 was regulated is realizable. Therefore, it has the effect that there is no complication and EST can be enforced safely.
[0073](A 3rd embodiment) A 3rd embodiment of this invention is described with reference to drawing 13 - drawing 16 below. With a sectional view, drawing 13 is shown and the structure by the side of the tip of a sheath Drawing 14 (A), (B), (C) expands and shows A"-A" line section of drawing 13, D"-D" line section of drawing 15, and the G-G line section of drawing 16, drawing 15 shows the structure by the side of the tip of a sheath in the H'-H' line section of drawing 14 (A), and drawing 16 shows the structure by the side of the tip of a sheath in the I'-I' line section of drawing 14. Drawing 13 shows the tip side of the sheath in the F'-F' line vertical section of drawing 14 (A).
[0074]The two reinforcement lumens 17c and 17d are formed in the sheath 15, and a different place as compared with a 2nd embodiment inserts in and reinforces with this embodiment the reinforcement wires 18a and 18b in which length differs respectively in it.
[0075]The reinforcement wire 18a is inserted in from the apical surface of the sheath 15 to the position of the length of L1, as shown in drawing 15 from the end face of the sheath 15. The reinforcement wire 18b is inserted in from the apical surface of the sheath 15 to the position of the length of L2, as shown in drawing 16 from the end face of the sheath 15. The length of L1 and L2 differs here.
[0076]The operation of this embodiment is almost the same as a 2nd embodiment. This embodiment has the following effects. Since the length which has inserted in and inserted in the two reinforcement wires 18a and 18b differs, it is effective in the hardness of the sheath 15 being gradually changeable. To the case where it more specifically inserts in in the treatment tool insertion channel of an endoscope etc., the back side is buckled easilier than the tip side

of the sheath 15.

[0077]For this reason, the back end side of the sheath 15 buckled easiliest is set as the softness or pliability which is not buckled with the two reinforcement wires 18a and 18b and which gave hardness a little (as opposed to the axial center direction of the sheath 15), And since a front side is made into the softness or pliability of a grade which is not buckled with the one reinforcement wire 18a from this portion and the sheath tip part 15d cannot be buckled further most easily, Without reinforcing, it can be set as softness or pliability soft enough so that the knife part 20 can be set up easily.

[0078]If the sheath portion near [the / projecting] an exit is too soft when the sheath tip side is made to project from the treatment tool insertion channel of an endoscope, and the projecting portion becomes the back side from the sheath tip part 15d, will bend from the portion at the time of pushing of the hand of the sheath 15, but. Since it has reinforced with the one reinforcement wire 18a to the position before the sheath tip part 15d, it is cancelable that such a situation occurs.

[0079](A 4th embodiment) A 4th embodiment of this invention is described with reference to drawing 17 - drawing 20 below. Drawing 17 shows the high frequency incision device for endoscopes of a 4th embodiment, and drawing 18 shows quarry basket forceps, Drawing 19 shows the composition by the side of the tip of the sheath in the state where quarry basket forceps were stored in the multiple-purpose lumen, and drawing 20 shows the example of use which deals with recovery of a calculus using quarry basket forceps.

[0080]High frequency incision device 11' for endoscopes of this embodiment to the 1st - the high frequency incision device 11 for endoscopes of a 3rd embodiment. The quarry basket forceps 51 which add the function of the treatment implement for grasping with which it deals so that a calculus in the living body may be grasped and it may be excreted out of a living body, therefore are shown in drawing 18 at the 1st - the high frequency incision device 11 for endoscopes of a 3rd embodiment are combined.

[0081]As shown in drawing 18, to the quarry basket forceps 51. The basket wire 53 in which the extension habit extended to basket shape with two or more wires was given at the tip of the operation wire 52 governs the tip of each basket wire 53 to one with the end chip 54, The basket part 50 as the calculus grasping part which stores and grasps a calculus inside, or a quarry part is formed. The back end of this operation wire 52 is fixed to the operation pipe 55, the operation knob 56 is further fixed to a hand side edge part, and this operation pipe 55 is formed in [a final controlling element] one.

[0082]The basket part 50 of these quarry basket forceps 51 can be inserted from the female-lures cap 30 into the multiple-purpose lumen 17b provided in the sheath body 15a which constitutes incision device 11', By performing forward operation which moves the operation knob 56 ahead, as shown in drawing 17 via the operation wire 52, the basket part 50 can be

set as the state of projecting, from the opening (getting it blocked tip opening of the multiple-purpose lumen 17b) at the tip of a sheath of this incision device 11'.

[0083]By performing retreat operation which grasps the operation knob 56 in the state of drawing 17, and moves back, as shown in drawing 19 via the operation wire 52, the extension habit which the basket part 50 extends can be resisted, this basket part 50 can be made to be closed, and it can also draw in the multiple-purpose lumen 17b.

[0084]Next, an operation is explained. When the calculus 44 is made in the bile duct 43 as shown in drawing 20 for example, EST is first performed by incision device 11' (carrying out like drawing 6 with the jam 1st - the incision device 11 of a 3rd embodiment) in the state where the quarry basket forceps 51 are not combined.

[0085]After that, the quarry basket forceps 51 are inserted in from the tip side in the multiple-purpose lumen 17b of this incision device 11', operation of advancing the operation wire 52 is performed, and the basket part 50 side is made to project from the tip opening of the multiple-purpose lumen 17b. Since the basket part 50 which projects from a tip opening is formed with the basket wire 53 in which the habit extended, respectively is given, it is extended in the shape of a basket. Therefore, as shown in drawing 20, the calculus 44 is stored in this extended basket part 50, operation of retreating the operation wire 52 further is performed, and it grasps so that the calculus 44 stored in the basket part 50 may not escape.

[0086]Then, move the sheath 15 to the back side and the tip side (the tip part and the basket part 50 of the sheath 15) of the sheath 15 is moved into the duodenum 41 from the inside of the bile duct 43, The calculus 44 stored to the basket part 50 is taken out from the basket part 50 in the duodenum 41 of the circumference, and it is made to be excreted automatically.

[0087]This embodiment has the following effects. Since one treatment implement can perform from endoscopic papillotomy treatment to recovery of the calculus 44, the technique is made to simplification and a short time, and the pain given to a patient is also more mitigable. Others have the 1st - the same effect as a 3rd embodiment.

[0088](A 5th embodiment) A 5th embodiment of this invention is described with reference to drawing 21 and drawing 22 below. Drawing 21 shows the high frequency incision device for endoscopes of a 5th embodiment, drawing 22 (A) shows the wire part of quarry basket forceps, and drawing 22 (B) shows the final controlling element of quarry basket forceps.

[0089]High frequency incision device 11" for endoscopes of this embodiment shown in drawing 21 provides the function to collect calculi like a 4th embodiment to the 1st - the high frequency incision device 11 for endoscopes of a 3rd embodiment, A different place from a 4th embodiment is the composition which the wire part 57 and the final controlling element 58 can detach and attach freely, as this quarry basket forceps 51' is shown in drawing 22 (A) and (B) (the quarry basket forceps 51 of a 4th embodiment are the composition which the wire part and the final controlling element unified).

[0090]The wire part 57 attaches the back end of two or more basket wires 53 at the tip of the operation wire 52, governs each tip to one with the end chip 54, and forms the basket part 50. The slider holding part 59 is formed in the operation pipe 55 and also its back end at the back end of the operation wire 52.

[0091]The male lure cap 58c is further formed at the tip of the operating section body 58a with the slider 58b which can slide the final controlling element 58 to this with the operating section body 58a.

[0092]Can fix to the slider 58b of the final controlling element 58, and the slider holding part 59 of the back end of the wire part 57 enables immobilization of the male lure cap 58c at the tip of the operating section body 58a in the female-lures cap 30 of high frequency incision device 11" for endoscopes, The final controlling element 58 is grasped single hand, and it can be made to perform operation of recovery of a calculus with advance and the retreat function of the slider 58b easily.

[0093]The operation of this embodiment is almost the same as a 4th embodiment. The effect of this embodiment is as follows. To having to operate it with both hands, by this embodiment, since operation single hand is possible for a 4th embodiment, it can measure facilitating of the technique. Others have the 1st - the same effect as a 3rd embodiment.

[0094](A 6th embodiment) A 6th embodiment of this invention is described with reference to drawing 23 (A) below. Drawing 23 (A) shows the sheath tip side of the high frequency incision device for endoscopes of a 6th embodiment. Unlike the calculus grasping part according [this embodiment] to the basket part 50 of a 4th and 5th embodiment, the calculus grasping part is formed of the snare loop 60.

[0095]One pair of wires 61 which have the elasticity which adhered both ends mutually so that this snare loop 60 might become loop shape at the tip of the operation wire 52, Or a calculus can be grasped by being formed using the wire 61 of the loop shape which has one elasticity, putting in a calculus in this snare loop 60, storing the end face side of the snare loop 60 in the multiple-purpose lumen 17b, and narrowing down a loop.

[0096]By making the snare loop 60 project ahead from the tip opening of the multiple-purpose lumen 17b to emit the grasped calculus within the duodenum, a loop can be extended and it can emit easily.

[0097]Drawing 23 (B) shows the sheath tip side in the modification of a 6th embodiment. In this modification, the calculus grasping part which grasps a calculus formed the nail at the tip, for example, is formed in it by the 3 nail 62. This 3 nail 62 bends a tip inside, and the back end of the three wires 63 which have the elasticity extended mutually is stuck and formed in the tip part of the operation wire 52 with soldering, soldering, etc.

[0098]By adjusting the projection amount from the multiple-purpose lumen 17b, the amount of extension can be adjusted, a calculus can grasp and grasp, and this 3 nail 62 can also open a

calculus (discharge). When reinforcing the sheath body 15a with a reinforcing member, a long groove may be formed in the longitudinal direction of the sheath body 15a, for example, and it may be made the structure of stored and reinforcing the reinforcement wire 18 in the long groove. In this case, it can perform easily adjusting not performing reinforcement by the sheath tip part 15d, for example etc.

[0099]Without forming the reinforcement lumen 17c etc. which insert in a reinforcing member, the reinforcement wire 18 is inserted in in the multiple-purpose lumen 17b, and it may be made to reinforce the sheath 15. In this case, the reinforcement wire 18 may be coated if needed. Sectional shape of the multiple-purpose lumen 17b may be made into shape which is different in it being circular.

[0100]When the one reinforcement wire 18 is formed like a 1st embodiment, It is not circular and make sectional shape of this reinforcement wire 18 into flat sections, such as plate shape, and that flat direction is arranged so that it may become vertical to the flat surface (it is hereafter described as the 1st flat surface) to which the medial axis of the sheath 15 is connected including the knife part 20, It is made to make incision treatment by the knife part 20 easy to perform, as it is hard to bend, and is easy to bend in the direction vertical to the 1st flat surface and becomes it along this 1st flat surface. In this case, it can be made further easy for the function of the flat shape of the reinforcement wire 18 to become large relatively, and to turn at along the 1st flat surface, if the conductive wire 16 is formed by the conductive member at which it is easier to turn than the reinforcement wire 18.

[0101]Are substantially reinforced from near the sheath base end to the base end rather than the wire derivation port by the reinforcing member, and rather than a wire derivation port, if the hardness of the sheath by the side of a tip is a thing of the level by which the damage to operation nature or a living body is not hindered, What the reinforcing member provided from near a sheath base end to the sheath tip part belongs to this invention. As this example, what extended the reinforcing member of the construction material softer than the end face of a wire derivation port to the sheath tip side, for example, the thing which made that cross-section area small and extended further the reinforcing member which extended to near a wire derivation port from the wire derivation port to the tip side, etc. correspond. The embodiment etc. which combined each above-mentioned embodiment selectively and formed them belong to this invention.

[0102][Additional remark]

1. Two or more lumens installed towards the axial center direction in the sheath body of the electric insulation sheath which can insert in the inside of the treatment tool insertion channel of an endoscope are formed, The reinforcement lumen which provided the reinforcing member for reinforcing said sheath body by the conductive wire lumen and other at least one lumen in which a conductive wire is inserted by one lumen is formed, respectively, and. Said conductive

wire is drawn from the wire derivation port formed in the peripheral face near the tip part of said sheath body by the outer side of said sheath body, In the high frequency incision device for endoscopes with which the knife part for high frequency incision is formed of the exposed part of the outer side of said main part in said conductive wire, A high frequency incision device for endoscopes providing said reinforcing member in the range of from [near the base end of said sheath body] up to near [said] the wire derivation port by the side of a base end.

[0103]2. Two or more lumens installed towards the axial center direction in the sheath body of the electric insulation sheath which can insert in the inside of the treatment tool insertion channel of an endoscope are formed, The reinforcement lumen which provided the reinforcing member for reinforcing said sheath body by the conductive wire lumen and other at least one lumen in which a conductive wire is inserted by one lumen is formed, respectively, and. Said conductive wire is drawn from the wire derivation port formed in the peripheral face near the tip part of said sheath body by the outer side of said sheath body, In the high frequency incision device for endoscopes with which the knife part for high frequency incision is formed of the exposed part of the outer side of said main part in said conductive wire, Provide said reinforcing member in the range of from [near the base end of said sheath body] up to near [said] the wire derivation port by the side of a base end, and. When the sheath of the portion which provided said reinforcing member is bent, rather than the flexing resistance along the 1st flat surface that connects the medial axis of said sheath to said knife part, and is formed. A high frequency incision device for endoscopes having biased said reinforcing member and providing it to the medial axis of said sheath so that it may be in the medial axis of said sheath and the direction of the flexing resistance along the 2nd flat surface that turned to said 1st flat surface perpendicularly may become large.

[0104]3. Two or more lumens installed towards the axial center direction in the sheath body of the electric insulation sheath which can insert in the inside of the treatment tool insertion channel of an endoscope are formed, While the reinforcement lumen which provided the reinforcing member for reinforcing said sheath body by the conductive wire lumen and other at least one lumen in which a conductive wire is inserted by one lumen is formed, respectively, Said conductive wire is drawn from the wire derivation port formed in the peripheral face near the tip part of said sheath body by the outer side of said sheath body, In the high frequency incision device for endoscopes with which the knife part for high frequency incision is formed of the exposed part of the outer side of said sheath body in said conductive wire, A high frequency incision device for endoscopes which provides [to / from / near the base end of said sheath body / near the sheath tip part] said reinforcing member, and is substantially characterized by reinforcing the range from [near the sheath base end] to the wire derivation port by the side of said base end.

[0105]4. High frequency incision device for endoscopes of additional remark 1 statement,

wherein said reinforcing member is respectively provided in two or more lumens and tip position of at least one reinforcing member of them differs from tip position of other reinforcing members.

5. High frequency incision device for endoscopes of additional remark 1 or additional remark 2 statement, wherein said reinforcing member is metal wire.

[0106]6. From the tip opening of said multiple-purpose lumen, by the forward operation of an operation wire, project and by and retreat operation. A high frequency incision device for endoscopes of additional remark 1 thru/or additional remark 3 statement having the treatment implement for grasping which provided the gripping member drawn and stored from the tip opening of said multiple-purpose lumen, and being able to use it combining said treatment implement for grasping.

[0107](Background relevant to the additional remarks 6-8) A treatment implement for endoscopes like JP,3-54615,A is known. Usually, after performing an endoscopic duodenotomy using the high frequency incision instrument of the publication number like the point, when carrying out the crushed stone of the stone in a common bile duct, use such an endoscope treatment implement, but. The insertion to a common bile duct from the duodenal papilla of a high frequency incision instrument and this treatment implement for endoscopes was dramatically difficult, and the technique which takes such a treatment implement in and out was dramatically complicated. For this reason, there is technique in providing the easy high frequency incision device for endoscopes.

[0108]7. Wire part to which said treatment implement for grasping has gripping member in operation wire tip, A high frequency incision device for endoscopes of the additional remark 4 statement comprising a final controlling element, and said final controlling element's consisting of an operating section body movable forward and backward and slider mutually, and being removable to the base end of said multiple-purpose lumen in said operating section body, and being able to detach and attach said slider freely to the base end of a wire part.

[0109]8. Said gripping member of said treatment implement for grasping by the forward operation of said operation wire. A high frequency incision device for endoscopes of additional remark 4 or additional remark 5 statement projecting from the tip opening of a multiple-purpose lumen, and the opening habit of self performs opening motion, and resisting a self habit, being drawn by retreat operation of said operation wire, and being stored from the tip opening of said multiple-purpose lumen.

[0110]

[Effect of the Invention]As stated above, according to this invention, two or more lumens installed towards the axial center direction in the sheath body of the electric insulation sheath which can insert in the inside of the treatment tool insertion channel of an endoscope are formed, While the reinforcement lumen which provided the reinforcing member for reinforcing

said sheath body by the conductive wire lumen and other at least one lumen in which a conductive wire is inserted by one lumen is formed, respectively, Said conductive wire is drawn from the wire derivation port formed in the peripheral face near the tip part of said sheath body by the outer side of said sheath body, In the high frequency incision device for endoscopes with which the knife part for high frequency incision is formed of the exposed part of the outer side of said sheath body in said conductive wire, By the above-mentioned composition, since said reinforcing member is provided in the range of from [near the base end of said sheath body] up to near [said] the wire derivation port by the side of a base end, bending of the sheath at the time of an operation is prevented, and good operation nature can be secured because a sheath becomes hard.

[0111]Good insertion nature can be secured without a sheath bending too much also at the time of insertion to the thin channel of a lumen or an endoscope, and pushing. Since the knife portion of a sheath is soft, a tube tip can be curved easily and better operation nature can be secured. Since a sheath tip part is also soft, damage cannot be inflicted on a living body but this device can be used safely.

[0112]Two or more lumens installed towards the axial center direction in the sheath body of the electric insulation sheath which can insert in the inside of the treatment tool insertion channel of an endoscope are formed, While the reinforcement lumen which provided the reinforcing member for reinforcing said sheath body by the conductive wire lumen and other at least one lumen in which a conductive wire is inserted by one lumen is formed, respectively, Said conductive wire is drawn from the wire derivation port formed in the peripheral face near the tip part of said sheath body by the outer side of said sheath body, In the high frequency incision device for endoscopes with which the knife part for high frequency incision is formed of the exposed part of the outer side of said sheath body in said conductive wire, While providing said reinforcing member in the range of from [near the base end of said sheath body] up to near [said] the wire derivation port by the side of a base end, When the sheath of the portion which provided said reinforcing member is bent, rather than the flexing resistance along the 1st flat surface that connects the medial axis of said sheath to said knife part, and is formed. Since said reinforcing member was biased and is provided to the medial axis of said sheath so that it may pass along the medial axis of said sheath and the direction of the flexing resistance along the 2nd flat surface that turned to said 1st flat surface perpendicularly may become large, the above-mentioned good operation nature, insertion nature, Safety can not only be securable, but since the bending direction of a knife base end sheath is regulated by the reinforcing member, the directivity of the stable knife over an endoscope is realizable.

[Translation done.]

* NOTICES *

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TECHNICAL FIELD

[Field of the Invention]It passes through this invention, it is endoscopically inserted into the abdominal cavity, and relates to a body tissue and the high frequency incision device for endoscopes which cuts a duodenal-papilla sphincter muscle open according to the high frequency current especially.

[Translation done.]

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PRIOR ART

[Description of the Prior Art]There is a high frequency incision instrument indicated by JP,5-7597,A and JP,5-68685,A. Such a high frequency incision instrument is what exposed the conductive wire inserted into the lumen of a tube to the external wall surface of the tube tip part, and formed the knife part, By pulling a conductive wire by operation by the side of a hand, a tube tip part is incurvated to an arc shape, a knife part is pressed against a treated area, and the high frequency current cuts it open. Such a high frequency incision instrument uses the comparatively soft tube in order to make the curve of a tube tip part easy.
[0003]There is an instrument indicated by JP,6-53125,B, and in order to control the incision direction of a sphincter muscle, the strengthening means of the rectangular section is formed, having applied this instrument to the range of a end face portion from the tip end part in one lumen of a tube.

[Translation done.]

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EFFECT OF THE INVENTION

[Effect of the Invention]Two or more lumens installed towards the axial center direction in this invention in the sheath body of the electric insulation sheath which can insert in the inside of the treatment tool insertion channel of an endoscope as stated above are formed, While the reinforcement lumen which provided the reinforcing member for reinforcing said sheath body by the conductive wire lumen and other at least one lumen in which a conductive wire is inserted by one lumen is formed, respectively, Said conductive wire is drawn from the wire derivation port formed in the peripheral face near the tip part of said sheath body by the outer side of said sheath body, In the high frequency incision device for endoscopes with which the knife part for high frequency incision is formed, said reinforcing member is provided in the range of from [near the base end of said sheath body] up to near [said] the wire derivation port by the side of a base end by the exposed part of the outer side of said sheath body in said conductive wire.
Therefore, by the above-mentioned composition, bending of the sheath at the time of an operation is prevented, and good operation nature can be secured because a sheath becomes hard.

[0111]Good insertion nature can be secured without a sheath bending too much also at the time of insertion to the thin channel of a lumen or an endoscope, and pushing. Since the knife portion of a sheath is soft, a tube tip can be curved easily and better operation nature can be secured. Since a sheath tip part is also soft, damage cannot be inflicted on a living body but this device can be used safely.
[0112]Two or more lumens installed towards the axial center direction in the sheath body of the electric insulation sheath which can insert in the inside of the treatment tool insertion channel of an endoscope are formed, While the reinforcement lumen which provided the reinforcing member for reinforcing said sheath body by the conductive wire lumen and other at least one

lumen in which a conductive wire is inserted by one lumen is formed, respectively, Said conductive wire is drawn from the wire derivation port formed in the peripheral face near the tip part of said sheath body by the outer side of said sheath body, In the high frequency incision device for endoscopes with which the knife part for high frequency incision is formed of the exposed part of the outer side of said sheath body in said conductive wire, While providing said reinforcing member in the range of from [near the base end of said sheath body] up to near [said] the wire derivation port by the side of a base end, When the sheath of the portion which provided said reinforcing member is bent, rather than the flexing resistance along the 1st flat surface that connects the medial axis of said sheath to said knife part, and is formed. Since said reinforcing member was biased and is provided to the medial axis of said sheath so that it may pass along the medial axis of said sheath and the direction of the flexing resistance along the 2nd flat surface that turned to said 1st flat surface perpendicularly may become large, the above-mentioned good operation nature, insertion nature, Safety can not only be securable, but since the bending direction of a knife base end sheath is regulated by the reinforcing member, the directivity of the stable knife over an endoscope is realizable.

[Translation done.]

* NOTICES *

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TECHNICAL PROBLEM

[Problem(s) to be Solved by the Invention]When the operation by the side of a hand pulls a conductive wire and a tube tip part is incurvated to an arc shape in the high frequency incision instrument indicated by JP,5-7597,A and JP,5-68685,A, since the tube is soft, some curve easily, but. Since a tube covered an overall length and bent in shaft orientations, there was a problem of the operation nature that a tube tip part cannot be curved easily, with the frictional resistance of a conductive wire and the lumen of a tube.
[0005]Also when pushing in such a high frequency incision instrument in the treatment tool insertion channel of an endoscope, and the thin lumen in the abdominal cavity, the tube bent in shaft orientations, and the pushing operation of the tube at hand did not get across to a tip part well, but there was a problem that insertion nature worsened.
[0006]Here, when performing what is called EST that cuts a duodenal-papilla sphincter muscle open using such a high frequency incision instrument for endoscopes, generally, it is used with a curving mechanism and the back strabism type endoscope provided with the ******** top device.
[0007]First, an endoscope is inserted into the duodenum and front view of the mammary papilla is carried out by the curving operation of an endoscope. Next, from the channel for treatment implement insertion of an endoscope, the high frequency incision instrument for endoscopes is inserted, and the high frequency incision instrument for endoscopes is inserted into a bile duct from mammary papilla by operation of the ******** top device of an endoscope, and curving operation. And by operation by the side of the hand of the high frequency incision instrument for endoscopes, a conductive wire is pulled, a tube tip part is incurvated to an arc shape, a knife part is pressed at least against sphincter muscles of teat, and the high frequency current cuts it open.
[0008]An endoscope image [in / for signs that EST at this time is performed / drawing 6 and drawing 6] is shown in drawing 8. As shown in drawing 6, in order to carry out front view of the

mammary papilla, it is necessary from an anatomical standpoint to incurvate the bend of an endoscope so that the center of the curve may come to the line of sight of an endoscope. The high frequency incision instrument for endoscopes is put in in the visual field range of an endoscope, and in order to make a tip part easy to insert into a bile duct, it is necessary to raise the high frequency incision instrument for endoscopes to the line of sight of an endoscope by operation of a ******** top device.

[0009]As shown in drawing 8, in order to enforce EST safely without complication, it is necessary to add incision in above [of space], and the 12:00 direction within what is called an endoscope view. therefore, the standing direction of the endoscope high frequency incision instrument according to the curving direction and treatment implement erection device of an endoscope as shown in drawing 6, when enforcing EST -- and, The knife part at the tip of a tube will be mostly placed on the same flat surface, and the tube tip part of an endoscope high frequency incision instrument will present the curved shape which turned the knife part inside.

[0010]It imitates to the above-mentioned tube curved shape here, and when an endoscope high frequency incision instrument is sent from an endoscope tip by bending so that a knife part may be suitable inside at the tip of a tube, and attaching a peculiarity, medical practitioners are devising so that direction of a knife part may turn to and come out of the direction which it will be at 12:00 within a view of an endoscope. That is, stability can aim at direction of a knife part by making the bend peculiarity of a tube agree to the curved shape of an endoscope, and direction of a treatment implement erection device.

[0011]The bend peculiarity work of the tube tip by this medical practitioner could not be performed by having been stabilized each time here, therefore there was a problem that the directivity of the knife part to an endoscope was not stabilized.

[0012]The strengthening means in the instrument indicated by JP,6-53125,B formed in the lumen of a tube, Since a tube overall length is covered and it is firmly reinforced when JP,5-7597,A and an endoscope high frequency incision instrument like JP,5-68685,A are made to suit, it is thought that the problem of the operation nature by bending of the tube overall length of the above-mentioned endoscope high frequency incision instrument and insertion nature is solved for how many minutes.

[0013]Since the direction at which a tube turns agrees to the curved shape of an endoscope, and direction of a treatment implement erection device by the tube bend direction regulation by the reinforced component in the instrument of JP,6-53125,B, it is thought that the problem of the directivity of a knife part is solved.

[0014]However, in the instrument of JP,6-53125,B. Since the reinforced component is provided also in the lumen of the knife part at the tip of a tube, when incurvating a tube tip part to an arc shape, a reinforced component serves as resistance (resistance which bars bending) of bending, and the problem of the operation nature that a tube tip part cannot be curved easily is

not solved after all.

[0015]Since the tube tip part is hard, when inserting a tube tip into a bile duct from mammary papilla, it is easy to do damage near a papillary area and to a bile duct wall, the danger of producing punching and serious complication, such as bleeding, becomes high, and a problem comes out at safety.

[0016]this invention was made in view of the point mentioned above, and cancels the problem of a Prior art, its operation nature is good, and can improve a channel or insertion nature in the living body, and it aims at providing the high frequency incision device for endoscopes excellent in the safety which does not inflict damage on a living body.

[0017]Other purposes of this invention are to provide the high frequency incision device for endoscopes with the directivity of the stable knife part to an endoscope. Other purposes of this invention have the technique in providing the easy high frequency incision device for endoscopes.

[Translation done.]

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MEANS

[Means for Solving the Problem]Two or more lumens installed towards an axial center direction in a sheath body of an electric insulation sheath which can insert in inside of a treatment tool insertion channel of an endoscope are formed, While a reinforcement lumen which provided a reinforcing member for reinforcing said sheath body by a conductive wire lumen and other at least one lumen in which a conductive wire is inserted by one lumen is formed, respectively, Said conductive wire is drawn from a wire derivation port formed in a peripheral face near the tip part of said sheath body by outer side of said sheath body, In a high frequency incision device for endoscopes with which a knife part for high frequency incision is formed, said reinforcing member was provided in the range of from [near the base end of said sheath body] up to near [said] the wire derivation port by the side of a base end by an exposed part of an outer side of said sheath body in said conductive wire.
[0019]By the above-mentioned composition, bending of a sheath at the time of an operation is prevented, and good operation nature can be secured because a sheath becomes hard. Good insertion nature can be secured without a sheath bending too much also at the time of insertion to a thin channel of a lumen or an endoscope, and pushing. Since a knife portion of a sheath is soft, a sheath tip can be curved easily and better operation nature can be secured. Since a sheath tip part is also soft, damage cannot be inflicted on a living body but this device can be used safely.
[0020]Two or more lumens installed towards an axial center direction in a sheath body of an electric insulation sheath which can insert in inside of a treatment tool insertion channel of an endoscope are formed, While a reinforcement lumen which provided a reinforcing member for reinforcing said sheath body by a conductive wire lumen and other at least one lumen in which a conductive wire is inserted by one lumen is formed, respectively, Said conductive wire is drawn from a wire derivation port formed in a peripheral face near the tip part of said sheath body by outer side of said sheath body, In a high frequency incision device for endoscopes

with which a knife part for high frequency incision is formed of an exposed part of an outer side of said sheath body in said conductive wire, While providing said reinforcing member in the range of from [near the base end of said sheath body] up to near [said] the wire derivation port by the side of a base end, When a sheath of a portion which provided said reinforcing member is bent, it passes along a medial axis of said sheath rather than flexing resistance along the 1st flat surface that connects a medial axis of said sheath to said knife part, and is formed, To a medial axis of said sheath, said reinforcing member was biased and was provided so that a direction of flexing resistance along the 2nd flat surface that turned to said 1st flat surface perpendicularly might become large.

[0021]The above-mentioned good operation nature, insertion nature, and safety can not only be securable, but by the above-mentioned composition, since a bending direction of a knife base end sheath makes it regulate by a reinforcing member, the directivity of a stable knife over an endoscope is realizable.

[0022]

[Embodiment of the Invention]Hereafter, a 1st embodiment of this invention is described with reference to drawing 1 - drawing 8. Drawing 1 shows the appearance of the whole high frequency incision device for endoscopes (what is called EST) which cuts open the body tissue, especially duodenal-papilla sphincter muscle in the abdominal cavity using the high frequency current, Drawing 2 shows the structure by the side of the tip of a sheath with a sectional view, and drawing 3 expands and shows the A-A line section of drawing 2, and the D-D line section of drawing 4, Drawing 4 shows the structure by the side of the tip of a sheath in the C-C line section of drawing 3 (A), drawing 5 expands and shows the section structure and the E section by the side of the hand of a sheath, and drawing 6 thru/or drawing 8 show the explanatory view of the operation through which it passes and which is endoscopically cut open. Drawing 2 shows the tip side of the sheath in the vertical section of the B-B line of drawing 3 (A). Drawing 8 shows the actual endoscope image in drawing 6.

[0023]As shown in drawing 1, a high frequency incision device for endoscopes of a 1st embodiment of this invention. (It is only hereafter described also as an incision device) The insert portion 13 of the narrow diameter which has the flexibility inserted in a patient's inside of the body through the treatment tool insertion channel in which the endoscope 12 (refer to drawing 6, drawing 7, and drawing 20) does not illustrate 11, It is allocated in the base end side of this insert portion 13, and comprises the final controlling element 14 by the side of a hand for a way person to operate this incision device 11 outside a patient's body.

[0024]The insert portion 13 of this incision device 11 comprises the sheath 15 formed by the member which has insulation electrically as shown in drawing 2. The main part (getting it blocked sheath body) 15a of this electrical insulation sheath 15, It has insulation electrically, and it is formed by products made of fluororesin, such as the resin which has thermoplasticity,

for example, PTFE, and FEP, and is formed in this embodiment by the flexible porous tube which has three lumens (lumen).

[0025]Namely, the wire lumen 17a which inserts in the conductive wire 16 which has conductivity, such as a metal wire, in the sheath body 15a as shown in drawing 3 (A) and (B), The multiple-purpose lumen 17b which has sufficient inside diameter which does not have offense in the insertion of a guidewire and/or pouring of a fluid (especially contrast medium) which are not illustrated (convenient), Three lumens with the reinforcement lumen 17c which inserts in the reinforcement wire 18 for reinforcing the sheath body 15a are provided, and it is installed towards the axial center direction (getting it blocked longitudinal direction of the sheath body 15a), respectively.

[0026]In the wire lumen 17a in the sheath body 15a, as shown in drawing 2, the conductive wire 16 is inserted in here, A guidewire is inserted in in the multiple-purpose lumen 17b, or the liquid-sending way where a fluid is poured in is formed, and the opening of the tip of the multiple-purpose lumen 17b is carried out.

[0027]moreover -- the inside of the reinforcement lumen 17c -- reinforcing members, such as metal, and the sheath tip part 15d which the reinforcement wire 18 made from stainless steel with large hardness more specifically shows to drawing 4 from a sheath base end (refer to drawing 5 (C)) also with a narrow diameter -- it is being immediately inserted in and fixed to the end face.

[0028]Although the knife part 20 does not appear in drawing 4, In order to make intelligible relative physical relationship in the axial center direction of the position by the side of the tip of the reinforcement wire 18, and the knife part 20, the two-dot chain line showed the knife part 20 (the two-dot chain line shows the knife part 20 in the same meaning also at other drawing 11, drawing 15, and drawing 16).

[0029]Also with a narrow diameter, since that hardness is large, this reinforcing member and the reinforcement wire 18 of the product made from stainless steel more specifically can fully adjust the degree (it is described also as pliability or softness) of the ease of bending of the sheath body 15a with the reinforcement wire 18 of an outer diameter small enough. For this reason, the cross-section area of the reinforcement lumen 17c in the section of the sheath body 15a and the reinforcement wire 18 has a merit by which it can be managed even if small enough.

[0030]The reinforcement wire 18 made from this stainless steel also has a function of radiopacity, and can also perform the check of the position of the sheath body 15a (strictly reinforcement wire 18) under X-ray irradiation.

[0031]The reinforcement lumen 17c was formed in the sheath body 15a in this way, the reinforcement wire 18 was inserted in, and that whose sheath body 15a is too (or it bends too much) soft is reinforced with this embodiment so that it may become moderate softness.

[0032]And in the case of a sheath which is easily buckled by this reinforcement when inserting in in the treatment tool insertion channel of the endoscope 12, and the thin abdominal cavity, it also receives, It is made the sheath 15 which lessens the excessive ease of bending more and has moderate pliability, Also when inserting in the thin treatment tool insertion channel or living body of the endoscope 12, it has been the feature to have secured the insertion nature which can be inserted in easily without fully telling the pushing operation of the hand of the sheath body 15a to the sheath tip part 15d, and buckling the sheath 15.
[0033]The sheath tip part 15d is curving operation (it has the feature that it can operate.) easily, when the damage to the living body at the time of a sheath being soft and inserting in the living body incurvates the sheath tip part 15d and makes the knife part 20 form with ** by prevention, since it is not reinforced.
[0034]The two wire derivation ports 19a and 19b whose insertion of the wire lumen 17a is enabled are formed in the peripheral face of the tip part 15d of the sheath body 15a, i.e., a sheath tip part. These wire derivation ports 19a and 19b are established in two positions along the shaft orientations of the sheath body 15a approximately.
[0035]And the tip side of the conductive wire 16 inserted in in the wire lumen 17a of the sheath body 15a, It is drawn from the two wire derivation ports 19a and 19b established in the sheath tip part 15d by the outer side of the sheath body 15a, and the knife part 20 for high frequency incision is formed of the wire exposed part 16a exposed to the outer side of this sheath body 15a. In this specification, as shown in drawing 2, from the apical surface of the sheath 15 to the back end of the knife part 20 is called the sheath tip part 15d.
[0036]Here, the conductive wires 16 are metal and a flexible wire of the product made from stainless steel more specifically. The tip part of this conductive wire 16 on metal and a twist concrete target. It is inserted in the lumen of the product made from stainless steel, metal, silver, platina **, and the radiopacity pipe 21 made from tungsten (what was made into pipe shape by the radiopacity member), It is being fixed by an adhesive agent (specifically soldering, brazing, adhesion), welding (especially laser welding, plasma arc welding), or other means.
[0037]The outside diameter size of the radiopacity pipe 21 is set up become large slightly rather than the inner diameter dimension of the wire lumen 17a of the sheath body 15a. And this radiopacity pipe 21 is being further fixed by press fit, adhesion, or other means in the wire lumen 17a by the side of a tip rather than the front wire derivation port 19a.
[0038]It is made easy to insert by forming in the uppermost tip part of the sheath body 15a the thin diameter section 15b which has the outside diameter size D2 smaller than the outside diameter size D1 of the pars intermedia of the sheath body 15a.
[0039]As shown in drawing 1, the marking part 22 to which two or more marking was performed is formed in the peripheral face near the tip part of the sheath body 15a along the

axial center direction of the sheath body 15a, and it can be made to perform grasp of the length of an outline by this marking part 22.

[0040]Next, the final controlling element 14 of the incision device 11 is explained. As shown in drawing 1 and drawing 5 (A), the abbreviated Y character-like connecting member 23 is formed in this final controlling element 14. The common connecting part 23a is formed in the tip part side of this connecting member 23, and, as for the rear end part side, the branch connection parts 23b and 23c which branched to two are formed. And the base end side of the insert portion 13 is inserted and connected in the lumen of the common connecting part 23a.

[0041]The operating section body 24 is being fixed to the back end of one branch connection part 23b of the connecting member 23. The slider 25 slides to the longitudinal direction of this operating section body 24, and this operating section body 24 is equipped with it movable. The base end of the conductive wire 16 is being fixed to this slider 25 via the conductive operation pipe 26 (refer to drawing 5 (B)) and the conductive plug 27.

[0042]It is connected to an RF generator device via the electrical cable which is not illustrated, and by turning on a foot switch etc., the high frequency current can flow into the conductive wire 16 from an RF generator device, and this plug 27 can cut a body tissue open by the knife part 20.

[0043]The operation pipe lumen 28 with the operation pipe 26 movable forward and backward opened for free passage by the wire lumen 17a of the sheath body 15a as shown in drawing 5 (B) at the connecting member 23, The branching multiple-purpose lumen 29 which is open for free passage in the multiple-purpose lumen 17b of the sheath body 15a as shown in drawing 5 (A) is formed. The wall around the multiple-purpose lumen 17b cuts and lacks near the back end of the sheath body 15a, and is opening it for free passage with the outside branching multiple-purpose lumen 29.

[0044]Here, the operation pipe lumen 28 is formed in one branch connection part 23b side of the connecting member 23, and the branching multiple-purpose lumen 29 is formed in the branch connection part 23c side of another side of the connecting member 23. Since the glass syringe which pours in a contrast medium etc. is fixed enabling free attachment and detachment, the female-lures cap 30 is formed in the end piece of the branching multiple-purpose lumen 29. It is also possible to insert a guidewire in this female-lures cap 30, and it is used also when insertion of a guidewire performs insertion to a target part easily.

[0045]Drawing 5 (C) shows the section which passes along the reinforcement lumen 17c in the E section of drawing 5 (A). the sheath tip part 15d shown in drawing 4 from the sheath base end 15c of the back end of the sheath body 15a shown in this drawing 5 (C) by this embodiment -- the reinforcement wire 18 is immediately inserted in in the reinforcement lumen 17c to the base end.

[0046]Next, it passes through an operation of the high frequency incision device 11 for

endoscopes of the above-mentioned composition, it is endoscopically inserted into the abdominal cavity, and it explains by the case where the high frequency current cuts open a lumen part exit like a body tissue, especially a duodenal-papilla part.

[0047]First, in the state where the high frequency incision device 11 for endoscopes is not used, the slider 25 of the final controlling element 14 is held in the position in readiness moved to the front end side to the operating section body 24. At this time, the tip part of the sheath body 15a is held, after approximately linear shape has developed.

[0048]In this state, from the tip of the sheath body 15a to the range of about 15 cm, it bends to an approximate circle arc and a peculiarity is attached so that the knife part 20 may turn to the inside.

[0049]In this state, as shown in drawing 6, the insert portion 13 of the incision device 11 is inserted in the treatment tool insertion channel which was beforehand provided in the endoscope inserting part 31 of the endoscope 12 inserted into the duodenum 41 and which is not illustrated, The insert portion 13 of the incision device 11 is made to project to an outer side from the tip opening of the treatment tool insertion channel provided in the tip part 32 of the endoscope inserting part 31.

[0050]In this case, by an approximate circle arc's bending to the sheath tip part 15d, and attaching a peculiarity to it, As direction into this bend peculiarity agrees and it is shown in drawing 8 to the curved shape of the tip part 32 of the endoscope inserting part 31, and direction of the treatment implement erection device 32a, direction of the knife part 20 can project toward the direction (above [in space]) which it will be at 12:00 within the view of an endoscope.

[0051]In this case, since it is made hard to bend rather than the case where have formed the reinforcement wire 18 in those shaft orientations at the sheath body 15a, and the reinforcement wire 18 is not formed, The sheath body 15a can be inserted in easy and a short time, without pushing of the hand of sheath body a sheath tip-part 15d Stroking, fully being told at the time of insertion, and buckling the sheath body 15a, even when an inside diameter is a small treatment tool insertion channel.

[0052]Then, the tip part of the insert portion 13 of the incision device 11 is inserted into the bile duct 43 from the mammary papilla 42 by the curving operation of the bend 33 of the endoscope inserting part 31, operation of the ******** top device 32a formed in the tip opening of the tip part 32 on **, or aggressiveness length operation of the insert portion 13 whole of the incision device 11.

[0053]Also in this case, the sheath body 15a located in a treatment tool insertion channel, Bending of the sheath portion which has come out of the treatment tool insertion channel of the endoscope 12 decreases, and pushing of the hand of the sheath body 15a is fully told to the sheath tip part 15d, and it can insert easily also into mammary papilla with a small inside

diameter, without buckling the sheath body 15a.
[0054]Since the sheath tip part 15d is not reinforced, its sheath is soft, and there are few dangers of being accompanied by punching and the complication of bleeding, without doing damage near mammary papilla and to bile duct 43 wall.
[0055]Then, the glass syringe which is not illustrated if needed to the female-lures cap 30 by the side of the branch connection part 23c of the connecting member 23 is attached. And the contrast medium poured in from this glass syringe is sent in the bile duct 43 through the branching multiple-purpose lumen 29 and the multiple-purpose lumen 17b of the sheath body 15a, and imaging in the bile duct 43 is performed.
[0056]Next, the marking part 22 of the peripheral face of the tip part of the sheath body 15a is followed as a rule of thumb, and the immersion depth to the mammary papilla 42 of the sheath body 15a is adjusted. Also in this case, since pushing of the hand of the sheath body 15a is fully told to the sheath tip part 15d, it can insert easily.
[0057]Next, the slider 25 of the final controlling element 14 is moved to the back end side to the operating section body 24. Since it is operated so that the conductive wire 16 may be pulled with operation of this slider 25 at the hand side, The wire exposed part 16a which curved to the approximate circle arc as the tip part of the sheath body 15a showed drawing 6, and was exposed to the outer side of the sheath body 15a as a result is restricted to the arc of a bow, and the knife part 20 is formed.
[0058]In this case, since it is not reinforced with the reinforcement wire 18, the sheath tip part 15d (wire exposed part 16a) has a soft sheath, when the tip part of the sheath body 15a curves, can curve easily and can realize good operation nature.
[0059]If the slider 25 of the final controlling element 14 is moved to the tip side to the operating section body 24 as an option, as shown in drawing 7, the conductive wire 16 will be pushed and the circular knife part 20 will be formed.
[0060]the arc of a bow -- or the high frequency current is circularly energized to the knife part 20 after forming the knife part 20, and sphincter muscles of teat are cut open to above [of the space in drawing 8] (the 12:00 direction within the view of the endoscope 12). If incision is completed, the slider 25 will be returned to the original position and the incision device 11 will be drawn out from the treatment tool insertion channel of the endoscope 12.
[0061]The effect of this embodiment is as follows. Since according to this embodiment the pliability of the sheath body 15a is reinforced with the reinforcement wire 18 and pliability is making it less moderate pliability, At the time of insertion into the treatment tool insertion channel of the endoscope 12, and a thin lumen, pushing of the hand of the sheath body 15a is fully told to the sheath tip part 15d, and improvement in insertion nature can be realized.
[0062]moreover -- according to this embodiment -- the reinforcement wire 18 -- a sheath base end to the sheath tip part 15d -- it being reinforced and immediately, to near the wire derivation

port by the side of a base end, When the sheath tip part 15d is not reinforced, but the damage to the living body at the time of inserting in the living body can be prevented since the sheath is softer than a reinforcing part, and curving the sheath tip part 15d, it can curve easily and good operation nature can be realized.

[0063]Since it can form only by putting in a stainless wire in the reinforcement lumen 17c, an assembly can be done simply and it can manufacture cheaply. The localization of the sheath body 15a under X-ray irradiation can also be performed by considering it as the member of radiopacity, such as a stainless wire, as this reinforcement wire 18.

[0064]Since according to this embodiment the pliability of the sheath body 15a is reinforced with the reinforcement wire 18 and pliability is made to less moderate pliability, buckling can be effectively prevented from fully occurring in the case of insertion also to the case of the sheath body of a narrow diameter. For this reason, it becomes possible to insert in in a treatment tool insertion channel etc. and to take incision measures also in the case of the sheath body made more into the narrow diameter, without buckling. In this case, it can be used with the endoscope 12 of the treatment tool insertion channel of a smaller inside diameter, and what has a small outer diameter of the endoscope inserting part 31 can be used (since the thing of a narrow diameter can be used as the endoscope inserting part 31). The pain given to the patient in the case of insertion can be reduced, and the range (use part) which can carry out insertion use can be expanded.

[0065](A 2nd embodiment) A 2nd embodiment of this invention is described with reference to drawing 9 - drawing 12 below. Drawing 9 shows the structure by the side of the tip of a sheath with a sectional view, and drawing 10 (A) and (B) expands and shows the A'-A' line section of drawing 9, and the D'-D' line section of drawing 11, Drawing 11 shows the structure by the side of the tip of a sheath by H-H and I-I ****** of drawing 10 (A), and drawing 12 shows the outline view which looked at the tip part of the incision device of this embodiment from the oblique direction. Drawing 9 shows the tip side of the sheath in the vertical section of the F-F line of drawing 10 (A).

[0066]The two reinforcement lumens 17c and 17d are formed in the sheath 15, and a different place as compared with a 1st embodiment inserts in the reinforcement wires 18a and 18b respectively into it, and is reinforced with this embodiment.

[0067]The reinforcement wires 18a and 18b are inserted to the portion immediately before the knife part 20, as shown in drawing 11 from the end face of the seeds 15.

[0068]As shown in drawing 12 here, when the flat surface which made the flat surface which connects the medial axis P of the sheath 15 to the knife part 20, and is formed Q flat surface, and passed along said medial axis P, and turned to said Q flat surface perpendicularly is made into R flat surface, With these two reinforcement wires 18a and 18b, when the sheath 15 of the portion which provided the reinforcement wire is bent, arrangement of the two reinforcement

wires 18a and 18b was biased, and is arranged rather than the flexing resistance along Q flat surface, so that the direction of the flexing resistance along R flat surface may become large.
[0069]That is, so that it may understand from the sectional view of drawing 9 (B) which wrote together Q flat surface and R flat surface, Rather than the flexing resistance at the time of bending the sheath body 15a along Q flat surface used as the flat surface containing the knife part 20 (or on Q flat surface). So that the direction of the flexing resistance at the time of bending the sheath body 15a along R flat surface which is vertical to this Q flat surface, and contains a medial axis (or on R flat surface) may become large, It has been the feature to have biased the two reinforcement wires 18a and 18b so that it might become close to R flat surface (or the distance from R flat surface becomes smaller than the distance from Q flat surface like), and to arrange them.
[0070]Like the case of a 1st embodiment, first, from the tip of the sheath body 15a to the range of about 15 cm, it turns at an operation of this embodiment to an approximate circle arc, and it attaches a peculiarity so that the knife part 20 may turn to the inside. Or the work which attaches this bend peculiarity may be omitted. Next, by operation of the slider 25 of the final controlling element 14, by incurvating the tip part of the sheath body 15a several times to an approximate circle arc, it bends to the sheath tip part 15d, and a peculiarity is attached.
[0071]It inserts in the endoscope 12 like the case of a 1st embodiment, and an outer side is made to project from the tip opening of a treatment tool insertion channel in this state. In this case, there is no bend which met R flat surface shown in drawing 12 by the difference in the flexing resistance of the above-mentioned sheath 15, and the sheath 15 is bent along Q flat surface. Therefore, as the bend direction of a sheath is regulated and it is shown in drawing 8 to the curved shape of the tip part 32 of the endoscope inserting part 31, and direction of the treatment implement erection device 32a, direction of the knife part 20 can send toward the direction (above [in space]) which it will be at 12:00 within the view of the endoscope 12. Therefore, the directional stability of the more exact knife part 20 is acquired rather than a 1st embodiment.
[0072]In addition to the effect of a 1st embodiment, the effect of this embodiment has the following effects. The directivity of the knife part 20 always projected and stabilized in the direction of 12:00 to the view of the endoscope 12 by arrangement of the two reinforcement wires 18a and 18b since the bending direction of the sheath 15 was regulated is realizable. Therefore, it has the effect that there is no complication and EST can be enforced safely.
[0073](A 3rd embodiment) A 3rd embodiment of this invention is described with reference to drawing 13 - drawing 16 below. With a sectional view, drawing 13 is shown and the structure by the side of the tip of a sheath Drawing 14 (A), (B), (C) expands and shows A"-A" line section of drawing 13, D"-D" line section of drawing 15, and the G-G line section of drawing 16, drawing 15 shows the structure by the side of the tip of a sheath in the H'-H' line section of

drawing 14 (A), and drawing 16 shows the structure by the side of the tip of a sheath in the I'-I' line section of drawing 14. Drawing 13 shows the tip side of the sheath in the F'-F' line vertical section of drawing 14 (A).

[0074]The two reinforcement lumens 17c and 17d are formed in the sheath 15, and a different place as compared with a 2nd embodiment inserts in and reinforces with this embodiment the reinforcement wires 18a and 18b in which length differs respectively in it.

[0075]The reinforcement wire 18a is inserted in from the apical surface of the sheath 15 to the position of the length of L1, as shown in drawing 15 from the end face of the sheath 15. The reinforcement wire 18b is inserted in from the apical surface of the sheath 15 to the position of the length of L2, as shown in drawing 16 from the end face of the sheath 15. The length of L1 and L2 differs here.

[0076]The operation of this embodiment is almost the same as a 2nd embodiment. This embodiment has the following effects. Since the length which has inserted in and inserted in the two reinforcement wires 18a and 18b differs, it is effective in the hardness of the sheath 15 being gradually changeable. To the case where it more specifically inserts in in the treatment tool insertion channel of an endoscope etc., the back side is buckled easilier than the tip side of the sheath 15.

[0077]For this reason, the back end side of the sheath 15 buckled easiliest is set as the softness or pliability which is not buckled with the two reinforcement wires 18a and 18b and which gave hardness a little (as opposed to the axial center direction of the sheath 15), And since a front side is made into the softness or pliability of a grade which is not buckled with the one reinforcement wire 18a from this portion and the sheath tip part 15d cannot be buckled further most easily, Without reinforcing, it can be set as softness or pliability soft enough so that the knife part 20 can be set up easily.

[0078]If the sheath portion near [the / projecting] an exit is too soft when the sheath tip side is made to project from the treatment tool insertion channel of an endoscope, and the projecting portion becomes the back side from the sheath tip part 15d, will bend from the portion at the time of pushing of the hand of the sheath 15, but. Since it has reinforced with the one reinforcement wire 18a to the position before the sheath tip part 15d, it is cancelable that such a situation occurs.

[0079](A 4th embodiment) A 4th embodiment of this invention is described with reference to drawing 17 - drawing 20 below. Drawing 17 shows the high frequency incision device for endoscopes of a 4th embodiment, and drawing 18 shows quarry basket forceps, Drawing 19 shows the composition by the side of the tip of the sheath in the state where quarry basket forceps were stored in the multiple-purpose lumen, and drawing 20 shows the example of use which deals with recovery of a calculus using quarry basket forceps.

[0080]High frequency incision device 11' for endoscopes of this embodiment to the 1st - the

high frequency incision device 11 for endoscopes of a 3rd embodiment. The quarry basket forceps 51 which add the function of the treatment implement for grasping with which it deals so that a calculus in the living body may be grasped and it may be excreted out of a living body, therefore are shown in drawing 18 at the 1st - the high frequency incision device 11 for endoscopes of a 3rd embodiment are combined.

[0081]As shown in drawing 18, to the quarry basket forceps 51. The basket wire 53 in which the extension habit extended to basket shape with two or more wires was given at the tip of the operation wire 52 governs the tip of each basket wire 53 to one with the end chip 54, The basket part 50 as the calculus grasping part which stores and grasps a calculus inside, or a quarry part is formed. The back end of this operation wire 52 is fixed to the operation pipe 55, the operation knob 56 is further fixed to a hand side edge part, and this operation pipe 55 is formed in [a final controlling element] one.

[0082]The basket part 50 of these quarry basket forceps 51 can be inserted from the female-lures cap 30 into the multiple-purpose lumen 17b provided in the sheath body 15a which constitutes incision device 11', By performing forward operation which moves the operation knob 56 ahead, as shown in drawing 17 via the operation wire 52, the basket part 50 can be set as the state of projecting, from the opening (getting it blocked tip opening of the multiple-purpose lumen 17b) at the tip of a sheath of this incision device 11'.

[0083]By performing retreat operation which grasps the operation knob 56 in the state of drawing 17, and moves back, as shown in drawing 19 via the operation wire 52, the extension habit which the basket part 50 extends can be resisted, this basket part 50 can be made to be closed, and it can also draw in the multiple-purpose lumen 17b.

[0084]Next, an operation is explained. When the calculus 44 is made in the bile duct 43 as shown in drawing 20 for example, EST is first performed by incision device 11' (carrying out like drawing 6 with the jam 1st - the incision device 11 of a 3rd embodiment) in the state where the quarry basket forceps 51 are not combined.

[0085]After that, the quarry basket forceps 51 are inserted in from the tip side in the multiple-purpose lumen 17b of this incision device 11', operation of advancing the operation wire 52 is performed, and the basket part 50 side is made to project from the tip opening of the multiple-purpose lumen 17b. Since the basket part 50 which projects from a tip opening is formed with the basket wire 53 in which the habit extended, respectively is given, it is extended in the shape of a basket. Therefore, as shown in drawing 20, the calculus 44 is stored in this extended basket part 50, operation of retreating the operation wire 52 further is performed, and it grasps so that the calculus 44 stored in the basket part 50 may not escape.

[0086]Then, move the sheath 15 to the back side and the tip side (the tip part and the basket part 50 of the sheath 15) of the sheath 15 is moved into the duodenum 41 from the inside of the bile duct 43, The calculus 44 stored to the basket part 50 is taken out from the basket part

50 in the duodenum 41 of the circumference, and it is made to be excreted automatically.
[0087]This embodiment has the following effects. Since one treatment implement can perform from endoscopic papillotomy treatment to recovery of the calculus 44, the technique is made to simplification and a short time, and the pain given to a patient is also more mitigable. Others have the 1st - the same effect as a 3rd embodiment.
[0088](A 5th embodiment) A 5th embodiment of this invention is described with reference to drawing 21 and drawing 22 below. Drawing 21 shows the high frequency incision device for endoscopes of a 5th embodiment, drawing 22 (A) shows the wire part of quarry basket forceps, and drawing 22 (B) shows the final controlling element of quarry basket forceps.
[0089]High frequency incision device 11" for endoscopes of this embodiment shown in drawing 21 provides the function to collect calculi like a 4th embodiment to the 1st - the high frequency incision device 11 for endoscopes of a 3rd embodiment, A different place from a 4th embodiment is the composition which the wire part 57 and the final controlling element 58 can detach and attach freely, as this quarry basket forceps 51' is shown in drawing 22 (A) and (B) (the quarry basket forceps 51 of a 4th embodiment are the composition which the wire part and the final controlling element unified).
[0090]The wire part 57 attaches the back end of two or more basket wires 53 at the tip of the operation wire 52, governs each tip to one with the end chip 54, and forms the basket part 50. The slider holding part 59 is formed in the operation pipe 55 and also its back end at the back end of the operation wire 52.
[0091]The male lure cap 58c is further formed at the tip of the operating section body 58a with the slider 58b which can slide the final controlling element 58 to this with the operating section body 58a.
[0092]Can fix to the slider 58b of the final controlling element 58, and the slider holding part 59 of the back end of the wire part 57 enables immobilization of the male lure cap 58c at the tip of the operating section body 58a in the female-lures cap 30 of high frequency incision device 11" for endoscopes, The final controlling element 58 is grasped single hand, and it can be made to perform operation of recovery of a calculus with advance and the retreat function of the slider 58b easily.
[0093]The operation of this embodiment is almost the same as a 4th embodiment. The effect of this embodiment is as follows. To having to operate it with both hands, by this embodiment, since operation single hand is possible for a 4th embodiment, it can measure facilitating of the technique. Others have the 1st - the same effect as a 3rd embodiment.
[0094](A 6th embodiment) A 6th embodiment of this invention is described with reference to drawing 23 (A) below. Drawing 23 (A) shows the sheath tip side of the high frequency incision device for endoscopes of a 6th embodiment. Unlike the calculus grasping part according [this embodiment] to the basket part 50 of a 4th and 5th embodiment, the calculus grasping part is

formed of the snare loop 60.

[0095]One pair of wires 61 which have the elasticity which adhered both ends mutually so that this snare loop 60 might become loop shape at the tip of the operation wire 52, Or a calculus can be grasped by being formed using the wire 61 of the loop shape which has one elasticity, putting in a calculus in this snare loop 60, storing the end face side of the snare loop 60 in the multiple-purpose lumen 17b, and narrowing down a loop.

[0096]By making the snare loop 60 project ahead from the tip opening of the multiple-purpose lumen 17b to emit the grasped calculus within the duodenum, a loop can be extended and it can emit easily.

[0097]Drawing 23 (B) shows the sheath tip side in the modification of a 6th embodiment. In this modification, the calculus grasping part which grasps a calculus formed the nail at the tip, for example, is formed in it by the 3 nail 62. This 3 nail 62 bends a tip inside, and the back end of the three wires 63 which have the elasticity extended mutually is stuck and formed in the tip part of the operation wire 52 with soldering, soldering, etc.

[0098]By adjusting the projection amount from the multiple-purpose lumen 17b, the amount of extension can be adjusted, a calculus can grasp and grasp, and this 3 nail 62 can also open a calculus (discharge). When reinforcing the sheath body 15a with a reinforcing member, a long groove may be formed in the longitudinal direction of the sheath body 15a, for example, and it may be made the structure of stored and reinforcing the reinforcement wire 18 in the long groove. In this case, it can perform easily adjusting not performing reinforcement by the sheath tip part 15d, for example etc.

[0099]Without forming the reinforcement lumen 17c etc. which insert in a reinforcing member, the reinforcement wire 18 is inserted in in the multiple-purpose lumen 17b, and it may be made to reinforce the sheath 15. In this case, the reinforcement wire 18 may be coated if needed. Sectional shape of the multiple-purpose lumen 17b may be made into shape which is different in it being circular.

[0100]When the one reinforcement wire 18 is formed like a 1st embodiment, It is not circular and make sectional shape of this reinforcement wire 18 into flat sections, such as plate shape, and that flat direction is arranged so that it may become vertical to the flat surface (it is hereafter described as the 1st flat surface) to which the medial axis of the sheath 15 is connected including the knife part 20, It is made to make incision treatment by the knife part 20 easy to perform, as it is hard to bend, and is easy to bend in the direction vertical to the 1st flat surface and becomes it along this 1st flat surface. In this case, it can be made further easy for the function of the flat shape of the reinforcement wire 18 to become large relatively, and to turn at along the 1st flat surface, if the conductive wire 16 is formed by the conductive member at which it is easier to turn than the reinforcement wire 18.

[0101]Are substantially reinforced from near the sheath base end to the base end rather than

the wire derivation port by the reinforcing member, and rather than a wire derivation port, if the hardness of the sheath by the side of a tip is a thing of the level by which the damage to operation nature or a living body is not hindered, What the reinforcing member provided from near a sheath base end to the sheath tip part belongs to this invention. As this example, what extended the reinforcing member of the construction material softer than the end face of a wire derivation port to the sheath tip side, for example, the thing which made that cross-section area small and extended further the reinforcing member which extended to near a wire derivation port from the wire derivation port to the tip side, etc. correspond. The embodiment etc. which combined each above-mentioned embodiment selectively and formed them belong to this invention.

[0102][Additional remark]

1. Two or more lumens installed towards the axial center direction in the sheath body of the electric insulation sheath which can insert in the inside of the treatment tool insertion channel of an endoscope are formed, The reinforcement lumen which provided the reinforcing member for reinforcing said sheath body by the conductive wire lumen and other at least one lumen in which a conductive wire is inserted by one lumen is formed, respectively, and. Said conductive wire is drawn from the wire derivation port formed in the peripheral face near the tip part of said sheath body by the outer side of said sheath body, In the high frequency incision device for endoscopes with which the knife part for high frequency incision is formed of the exposed part of the outer side of said main part in said conductive wire, A high frequency incision device for endoscopes providing said reinforcing member in the range of from [near the base end of said sheath body] up to near [said] the wire derivation port by the side of a base end.

[0103]2. Two or more lumens installed towards the axial center direction in the sheath body of the electric insulation sheath which can insert in the inside of the treatment tool insertion channel of an endoscope are formed, The reinforcement lumen which provided the reinforcing member for reinforcing said sheath body by the conductive wire lumen and other at least one lumen in which a conductive wire is inserted by one lumen is formed, respectively, and. Said conductive wire is drawn from the wire derivation port formed in the peripheral face near the tip part of said sheath body by the outer side of said sheath body, In the high frequency incision device for endoscopes with which the knife part for high frequency incision is formed of the exposed part of the outer side of said main part in said conductive wire, Provide said reinforcing member in the range of from [near the base end of said sheath body] up to near [said] the wire derivation port by the side of a base end, and. When the sheath of the portion which provided said reinforcing member is bent, rather than the flexing resistance along the 1st flat surface that connects the medial axis of said sheath to said knife part, and is formed. A high frequency incision device for endoscopes having biased said reinforcing member and providing it to the medial axis of said sheath so that it may be in the medial axis of said sheath

and the direction of the flexing resistance along the 2nd flat surface that turned to said 1st flat surface perpendicularly may become large.

[0104]3. Two or more lumens installed towards the axial center direction in the sheath body of the electric insulation sheath which can insert in the inside of the treatment tool insertion channel of an endoscope are formed, While the reinforcement lumen which provided the reinforcing member for reinforcing said sheath body by the conductive wire lumen and other at least one lumen in which a conductive wire is inserted by one lumen is formed, respectively, Said conductive wire is drawn from the wire derivation port formed in the peripheral face near the tip part of said sheath body by the outer side of said sheath body, In the high frequency incision device for endoscopes with which the knife part for high frequency incision is formed of the exposed part of the outer side of said sheath body in said conductive wire, A high frequency incision device for endoscopes which provides [to / from / near the base end of said sheath body / near the sheath tip part] said reinforcing member, and is substantially characterized by reinforcing the range from [near the sheath base end] to the wire derivation port by the side of said base end.

[0105]4. High frequency incision device for endoscopes of additional remark 1 statement, wherein said reinforcing member is respectively provided in two or more lumens and tip position of at least one reinforcing member of them differs from tip position of other reinforcing members.

5. High frequency incision device for endoscopes of additional remark 1 or additional remark 2 statement, wherein said reinforcing member is metal wire.

[0106]6. From the tip opening of said multiple-purpose lumen, by the forward operation of an operation wire, project and by and retreat operation. A high frequency incision device for endoscopes of additional remark 1 thru/or additional remark 3 statement having the treatment implement for grasping which provided the gripping member drawn and stored from the tip opening of said multiple-purpose lumen, and being able to use it combining said treatment implement for grasping.

[0107](Background relevant to the additional remarks 6-8) A treatment implement for endoscopes like JP,3-54615,A is known. Usually, after performing an endoscopic duodenotomy using the high frequency incision instrument of the publication number like the point, when carrying out the crushed stone of the stone in a common bile duct, use such an endoscope treatment implement, but. The insertion to a common bile duct from the duodenal papilla of a high frequency incision instrument and this treatment implement for endoscopes was dramatically difficult, and the technique which takes such a treatment implement in and out was dramatically complicated. For this reason, there is technique in providing the easy high frequency incision device for endoscopes.

[0108]7. Wire part to which said treatment implement for grasping has gripping member in

operation wire tip, A high frequency incision device for endoscopes of the additional remark 4 statement comprising a final controlling element, and said final controlling element's consisting of an operating section body movable forward and backward and slider mutually, and being removable to the base end of said multiple-purpose lumen in said operating section body, and being able to detach and attach said slider freely to the base end of a wire part.
[0109]8. Said gripping member of said treatment implement for grasping by the forward operation of said operation wire. A high frequency incision device for endoscopes of additional remark 4 or additional remark 5 statement projecting from the tip opening of a multiple-purpose lumen, and the opening habit of self performs opening motion, and resisting a self habit, being drawn by retreat operation of said operation wire, and being stored from the tip opening of said multiple-purpose lumen.
[0110]

[Translation done.]

* NOTICES *

1.This document has been translated by computer. So the translation may not reflect the original precisely.
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

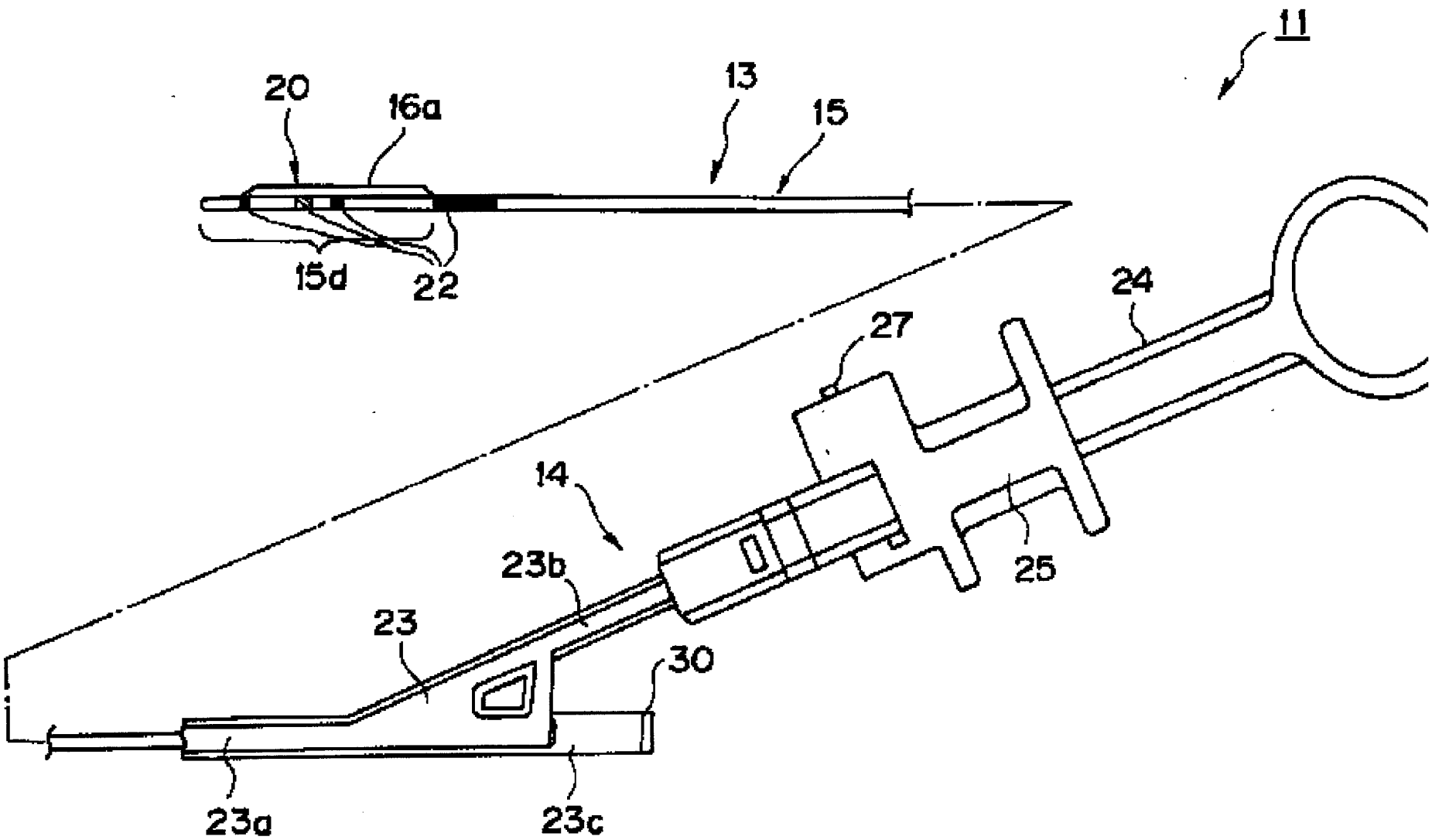
DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]
[Drawing 1]The outline view showing the whole high frequency incision device for endoscopes of a 1st embodiment of this invention.
[Drawing 2]The sectional view showing the structure by the side of the tip of a sheath.
[Drawing 3]The figure expanding and showing the A-A line section of drawing 2, and the D-D line section of drawing 4.
[Drawing 4]The figure showing the structure by the side of the tip of a sheath in the C-C line section of drawing 3 (A).
[Drawing 5]The figure expanding and showing the section structure and the E section by the side of the hand of a sheath.
[Drawing 6]The explanatory view of the operation which passes and cuts sphincter muscles of teat open endoscopically.
[Drawing 7]The explanatory view of the operation which passes by different technique from drawing 6, and cuts sphincter muscles of teat open on an endoscope target.
[Drawing 8]The figure showing the endoscope image at the time of observing actually in drawing 6.
[Drawing 9]The sectional view showing the structure by the side of the tip of the sheath in a 2nd embodiment of this invention.
[Drawing 10]The figure expanding and showing the A'-A' line section of drawing 9, and the D'-D' line section of drawing 11.
[Drawing 11]The figure showing the structure by the side of the tip of a sheath in H-H and the I-I line section of drawing 10 (A).
[Drawing 12]The outline view which looked at the sheath tip side from the oblique direction.
[Drawing 13]The sectional view showing the structure by the side of the tip of the sheath in a 3rd embodiment of this invention.

[Drawing 14]A"-A" line section of drawing 13, the figure of drawing 15 expanding and showing a line section and the G-G line section of drawing 16 D" - D ".
[Drawing 15]The figure showing the structure by the side of the tip of a sheath in the H'-H' line section of drawing 14 (A).
[Drawing 16]The figure showing the structure by the side of the tip of a sheath in the I'-I' line section of drawing 14.
[Drawing 17]The lineblock diagram showing the whole high frequency incision device for endoscopes of a 4th embodiment of this invention.
[Drawing 18]The side view showing quarry basket forceps.
[Drawing 19]The sectional view showing the composition by the side of the tip of the sheath in the state where quarry basket forceps were stored in the multiple-purpose lumen.
[Drawing 20]The explanatory view showing the example of use which deals with recovery of a calculus using quarry basket forceps.
[Drawing 21]The lineblock diagram showing the whole high frequency incision device for endoscopes of a 5th embodiment of this invention.
[Drawing 22]The figure showing the wire part and final controlling element of quarry basket forceps.
[Drawing 23]The figure showing the composition by the side of a 6th embodiment of this invention, and the sheath tip of the high frequency incision device for endoscopes of the modification.
[Description of Notations]
11 -- High frequency incision device for endoscopes
12 -- Endoscope
13 -- Insert portion
14 -- Final controlling element
15 -- Sheath
15a -- Sheath body
15b -- Thin diameter section
15c -- Sheath base end
15d -- Sheath tip part
16 -- Conductive wire
17a -- Wire lumen
17b -- Multiple-purpose lumen
17c -- Reinforcement lumen
17d -- Reinforcement lumen
18 -- Reinforcement wire
19a, 19b -- Wire derivation port

20 -- Knife part
21 -- Radiopacity pipe
22 -- Marking part
23 -- Connecting member
24 -- Operating section body
25 -- Slider
26 -- Operation pipe
27 -- Plug
28 -- Operation pipe lumen
29 -- Branching multiple-purpose lumen
30 -- Female-lures cap
41 -- Duodenum
42 -- Mammary papilla
43 -- Bile duct
P -- Medial axis
Q--Q flat surface
R--R flat surface

[Translation done.]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16a
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15
15d
22
24
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14
23b
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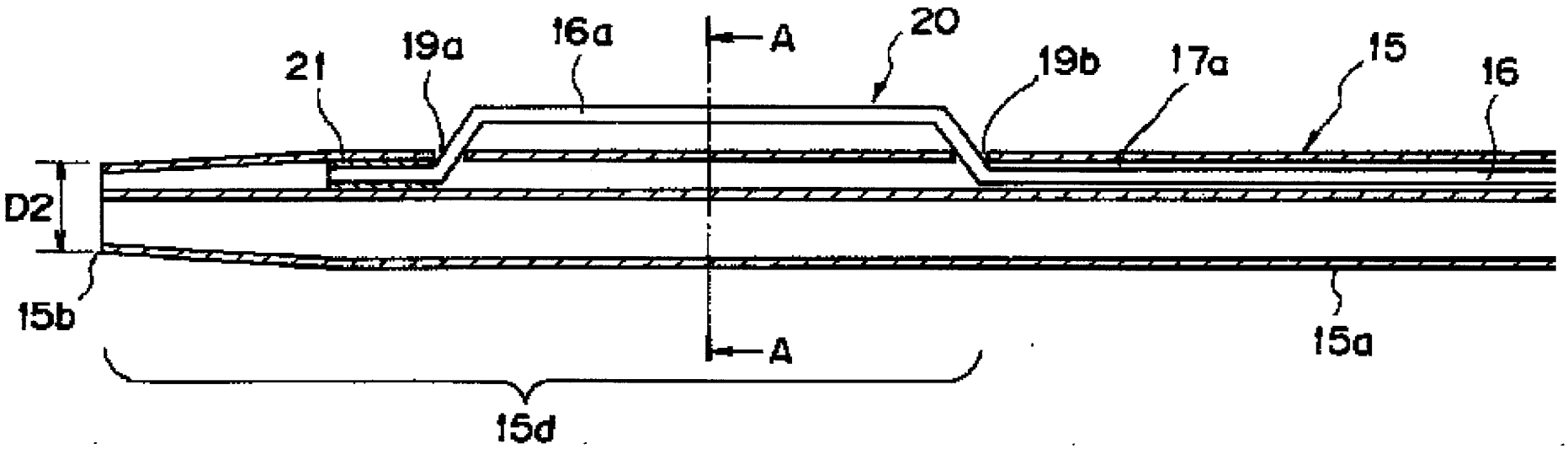
23
30
23a
23c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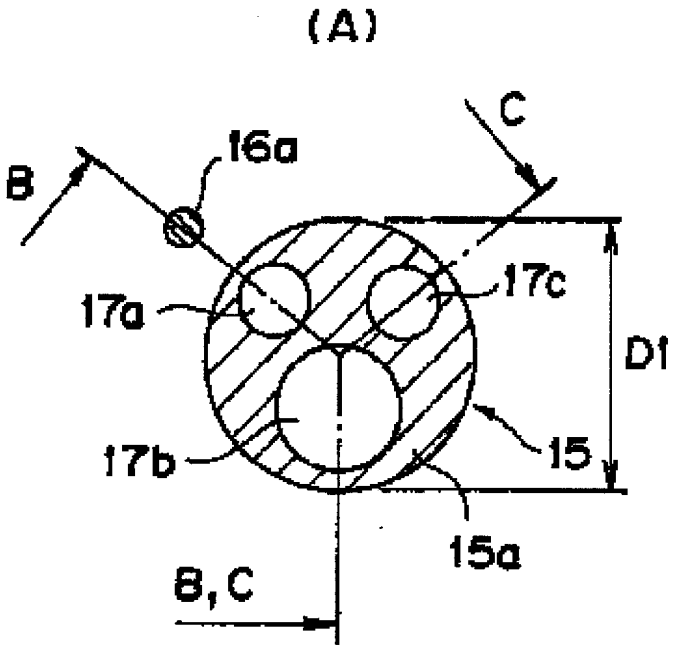
19b
17a
15
16
D2
15b
A
15a
15d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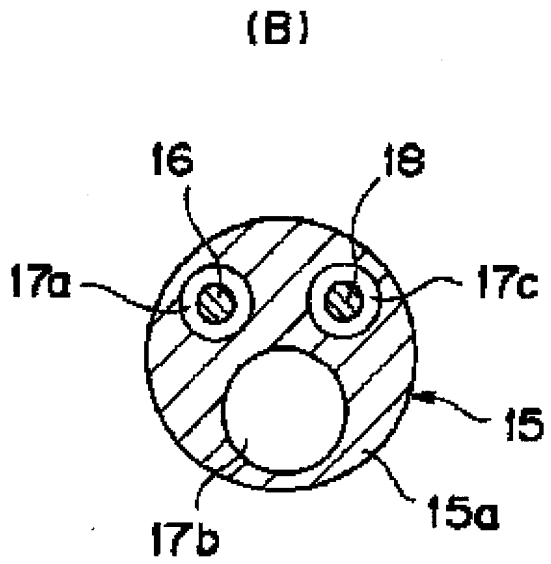
B
16a
C
17a
17c
D1
17b
15
15a
B, C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17c
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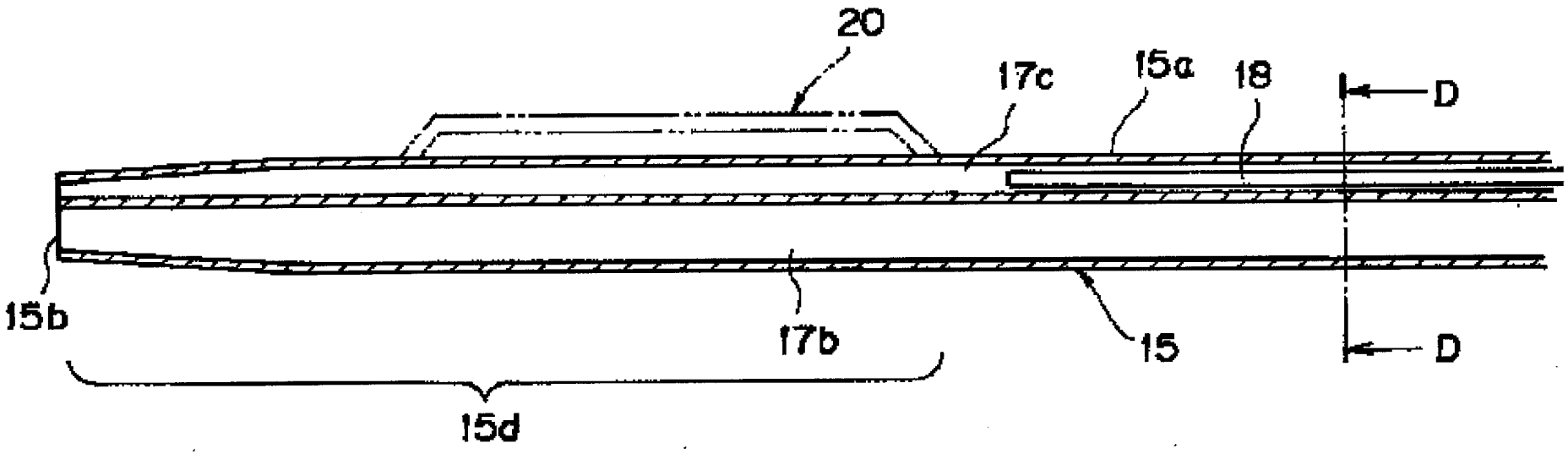
17b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D
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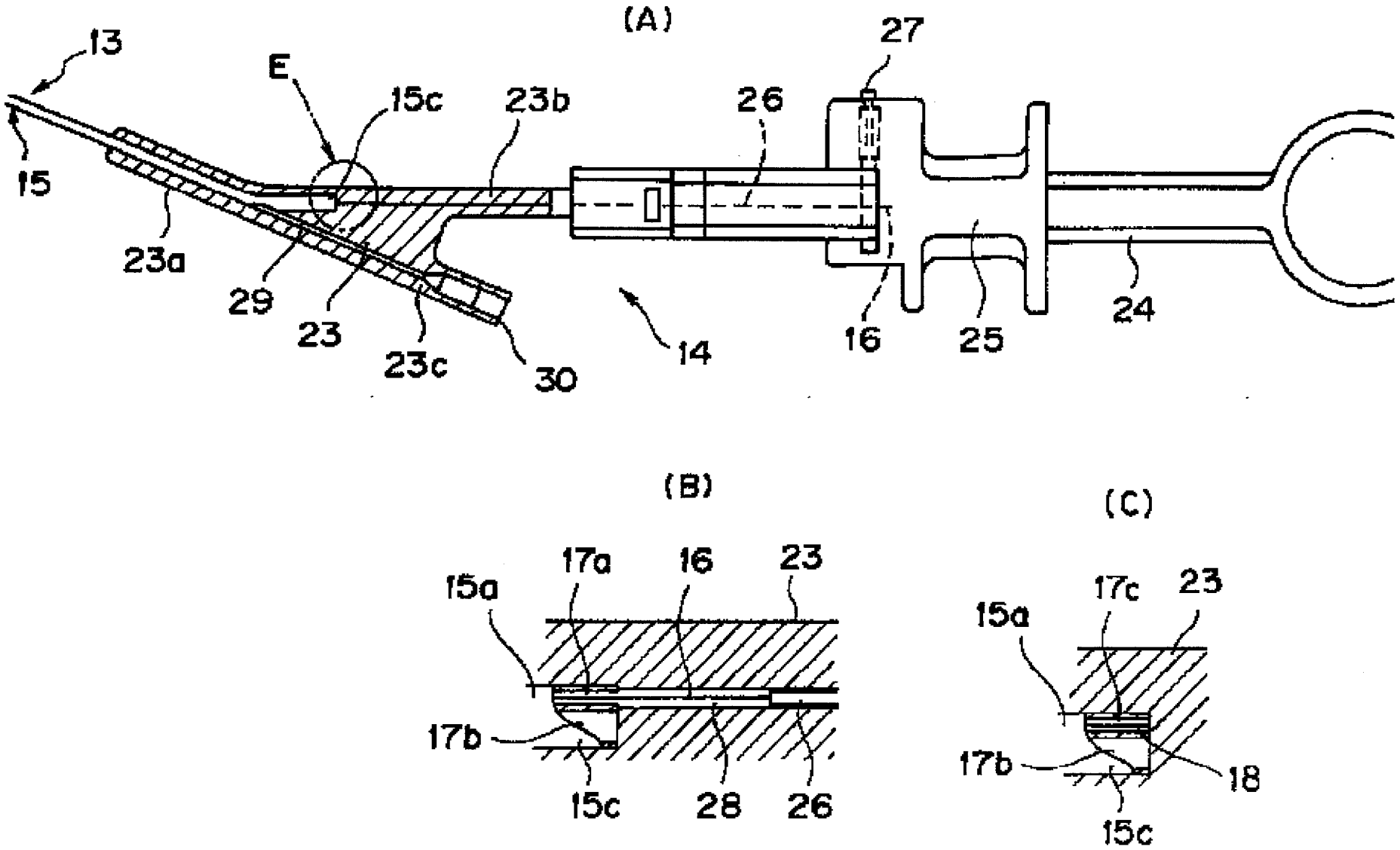
15d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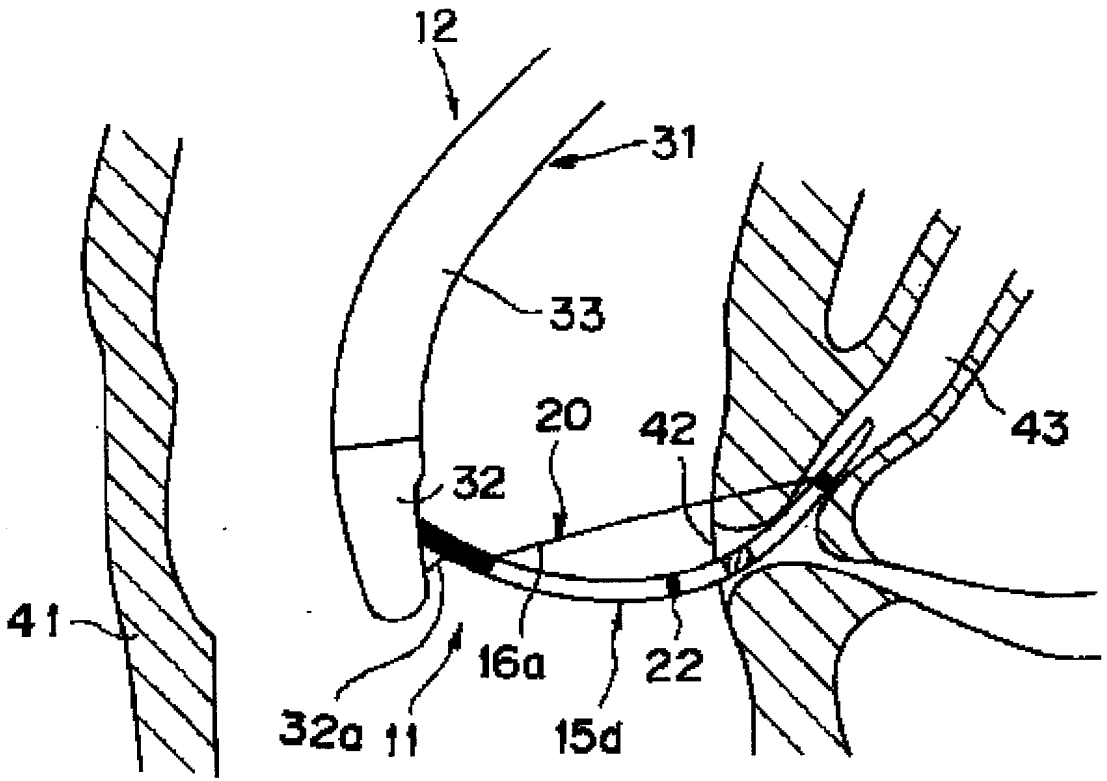
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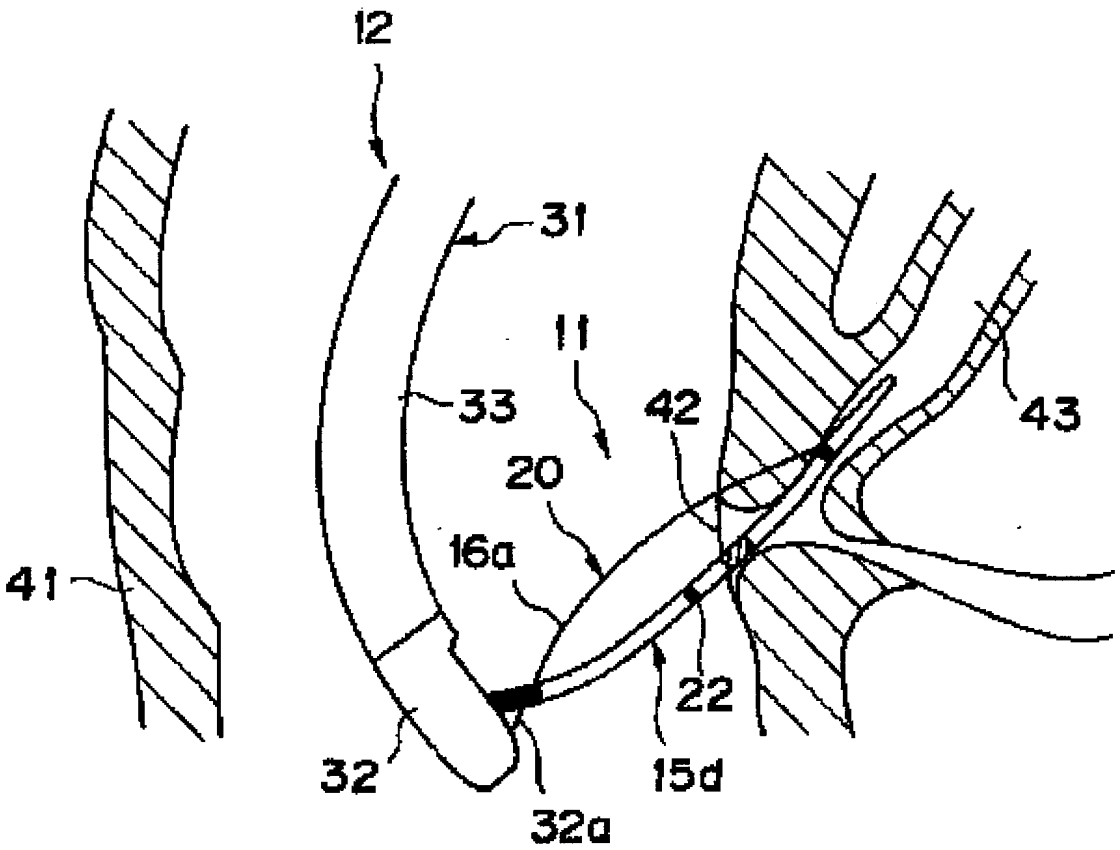
32a
11
15d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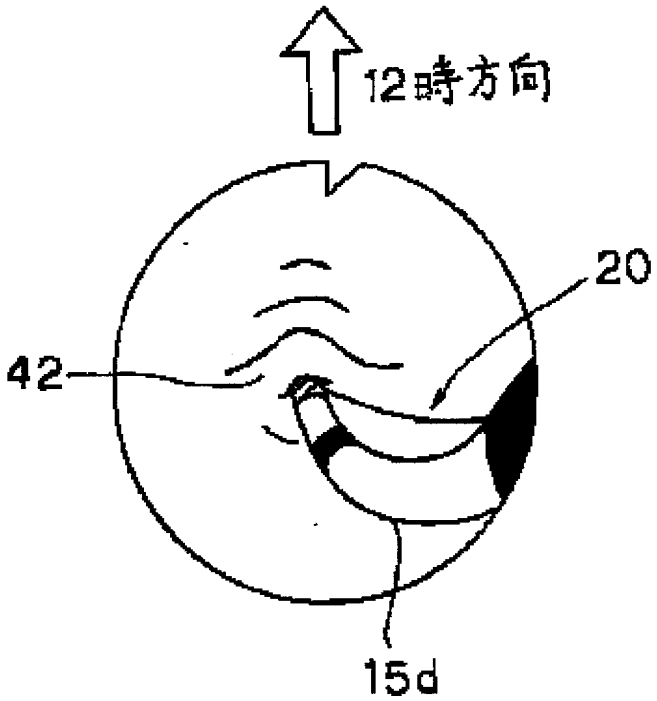
15d
32a


12時方向
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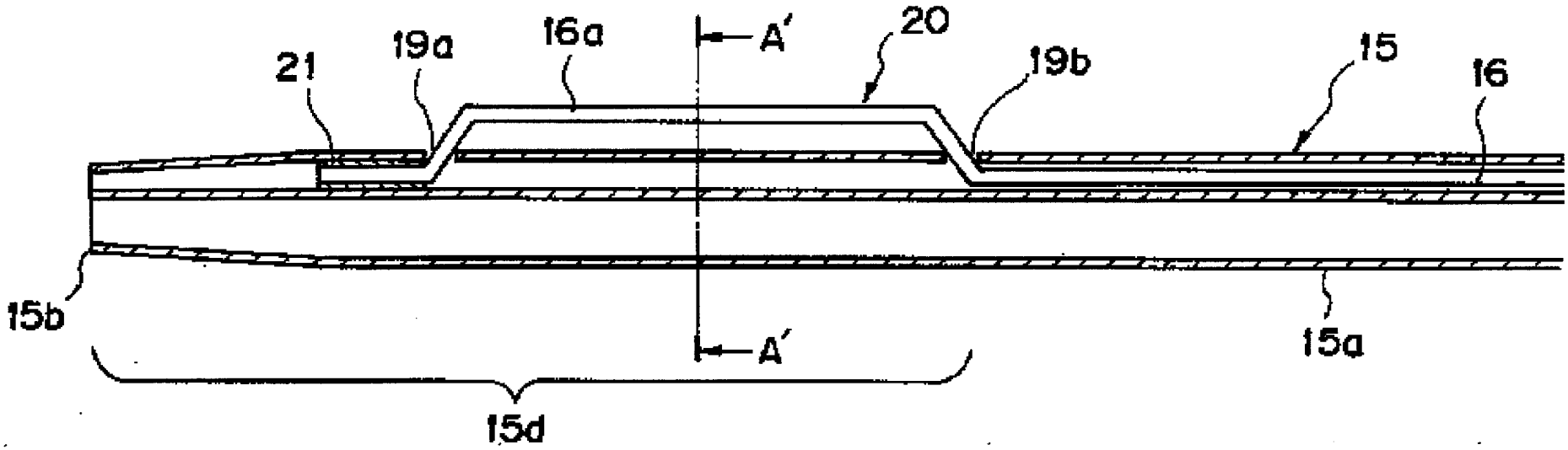
42
15d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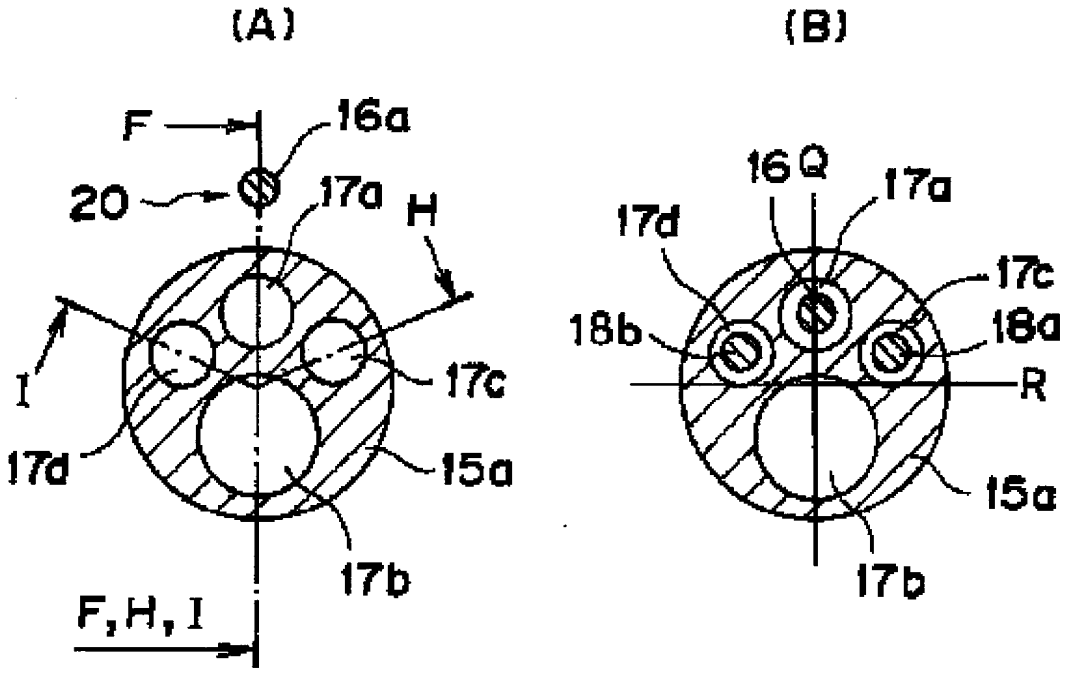
19b
15
16
15b
A'
15a
15d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F
16a
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17a
H
I
17c
17d
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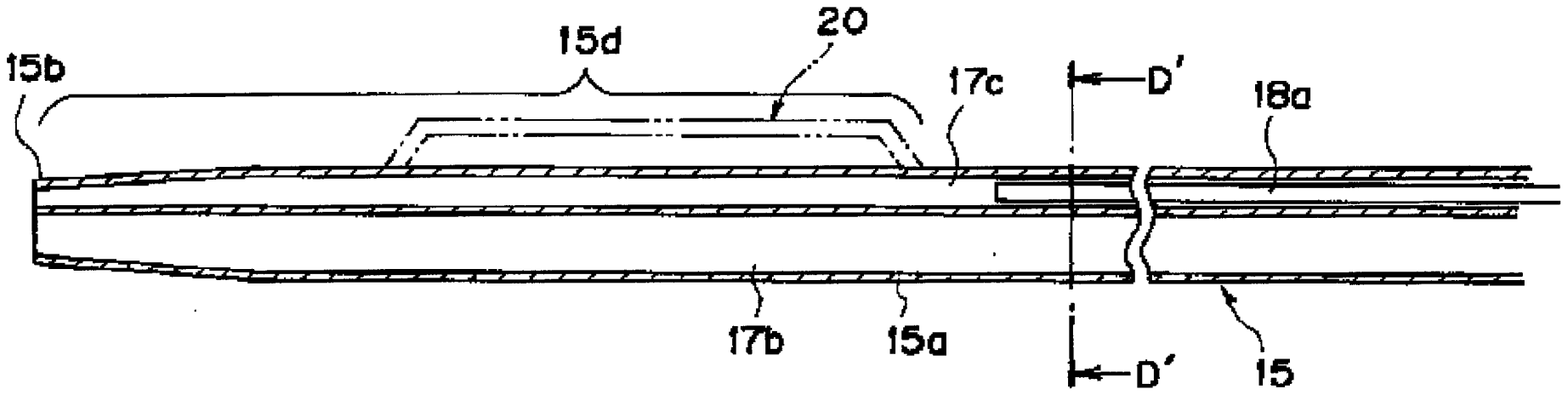
18a
R
15a
17b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D'
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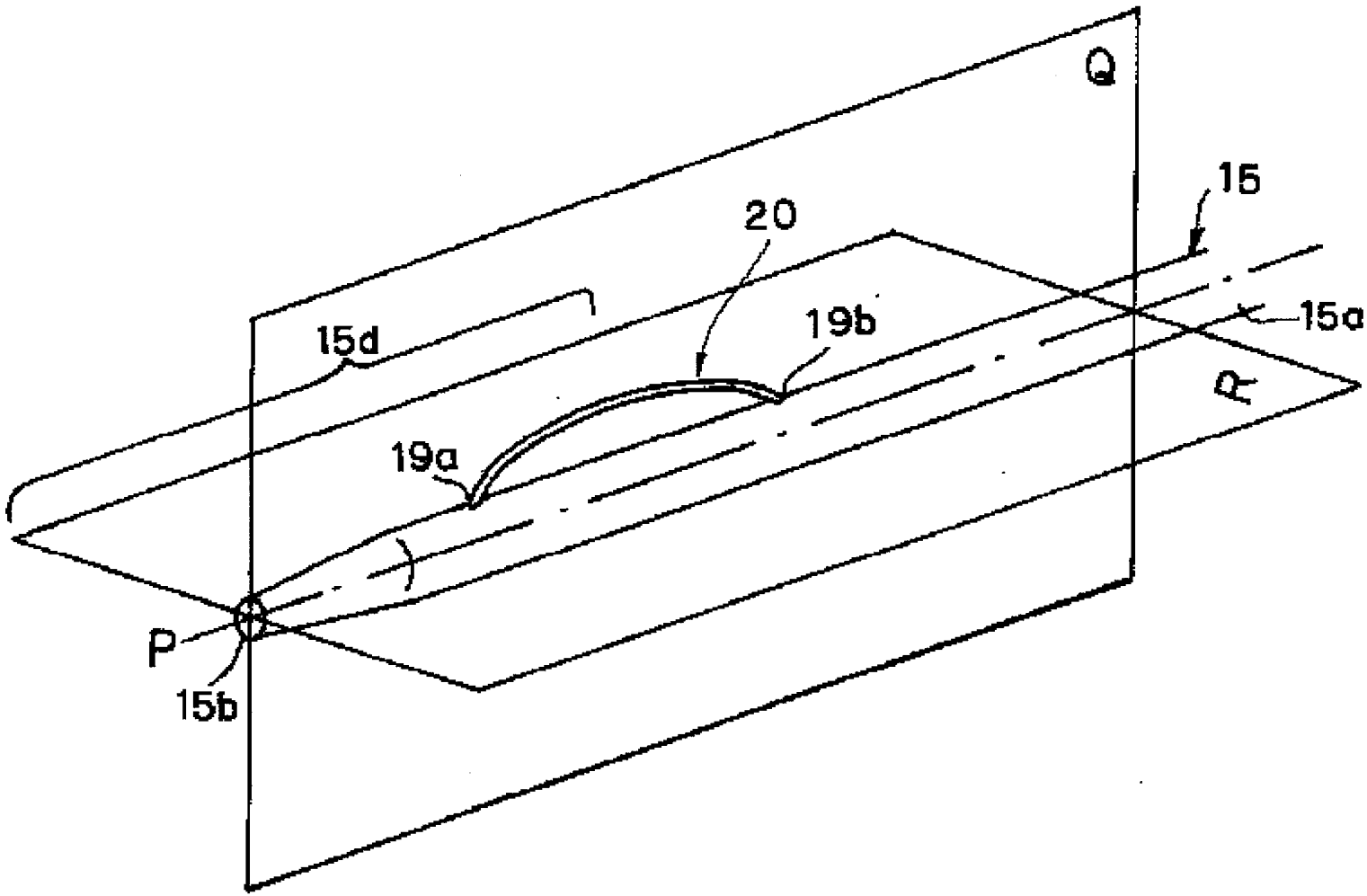
Q
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15d
19b
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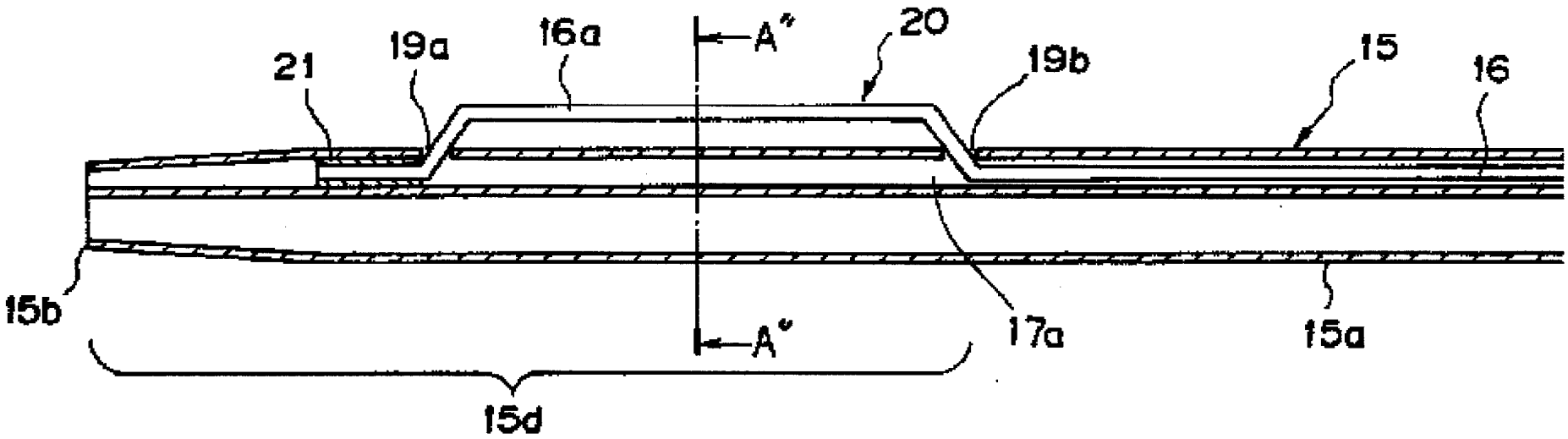
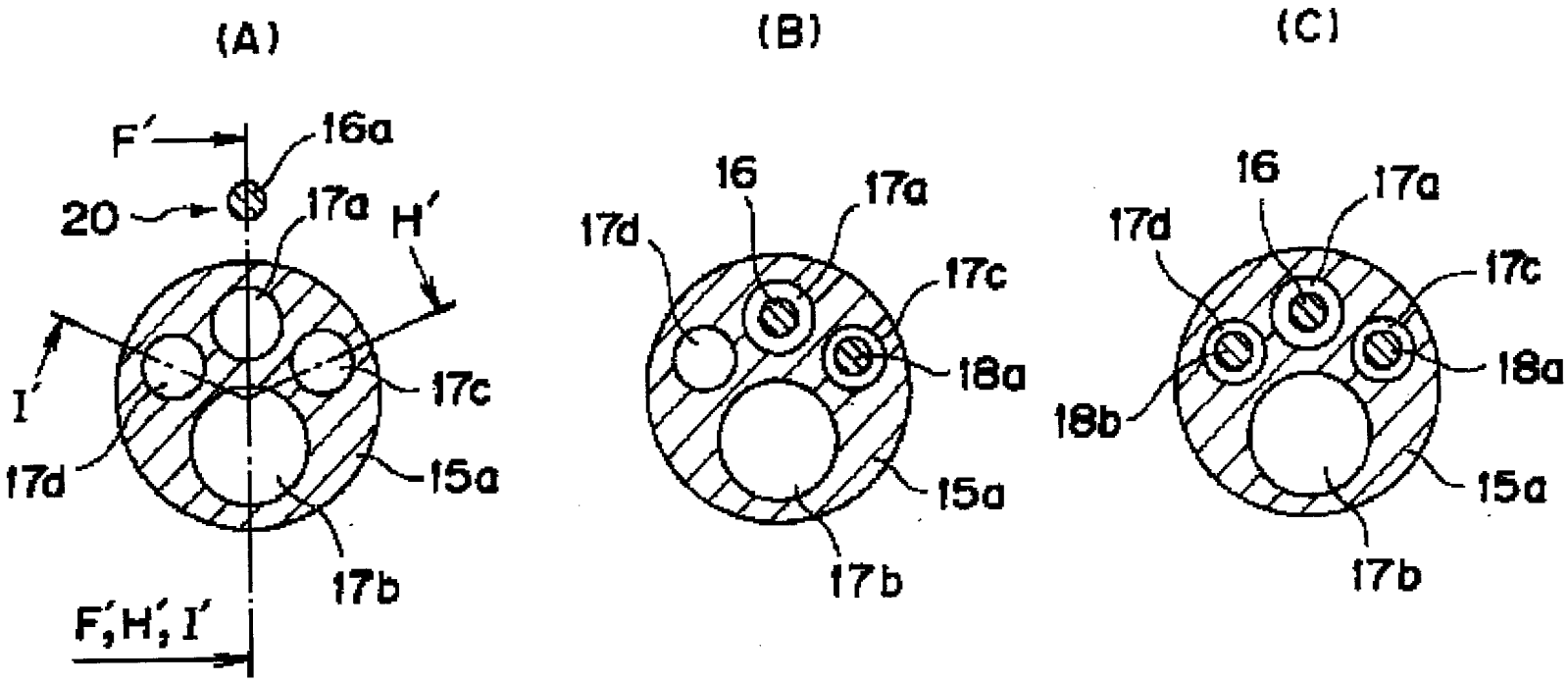
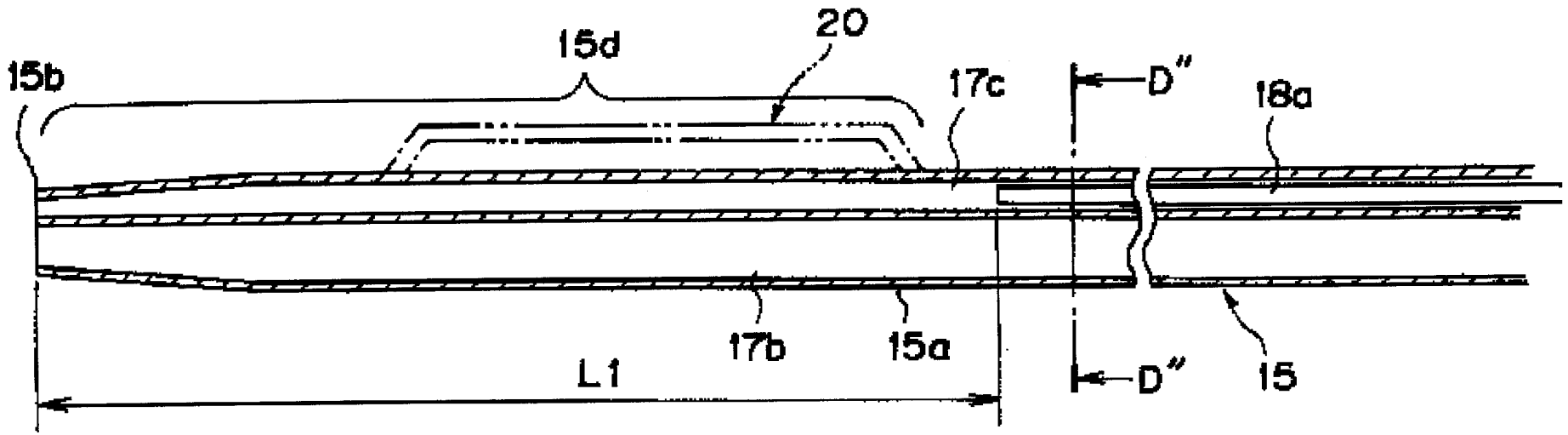
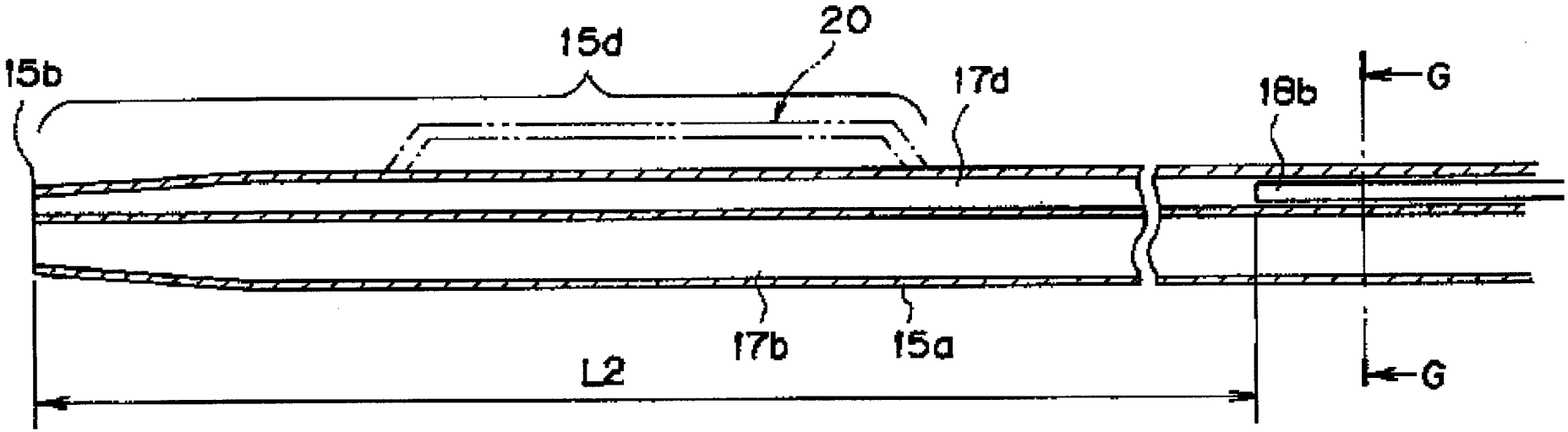
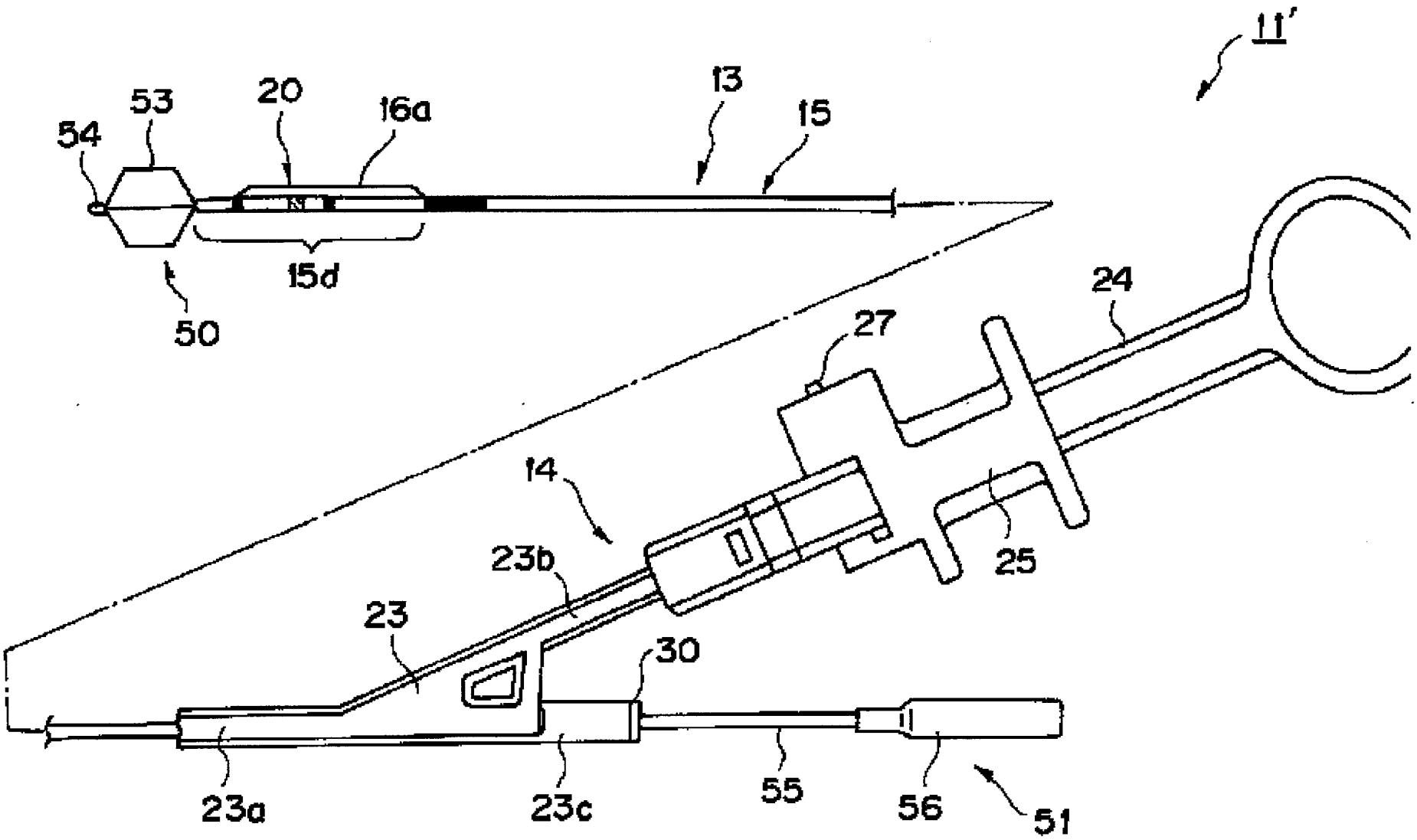
R
19a
P
15b


21
19a
16a
A"
20
19b
15
16
15b
17a
15a
A"
15d

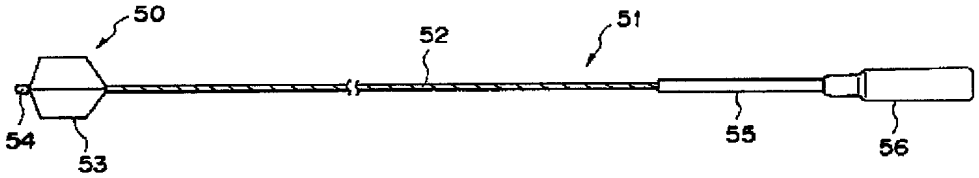

(A)
(B)
(C)
F'
16a
20
17a
H'
I'
17c
17d
15a
17b
F',H',I'
16
17a
17d
17c
18a
15a
17b
16
17a
17d
17c
18a
18b
15a
17b


15b
15d
20
17c
D"
18a
17b
15a
15
L1
D"

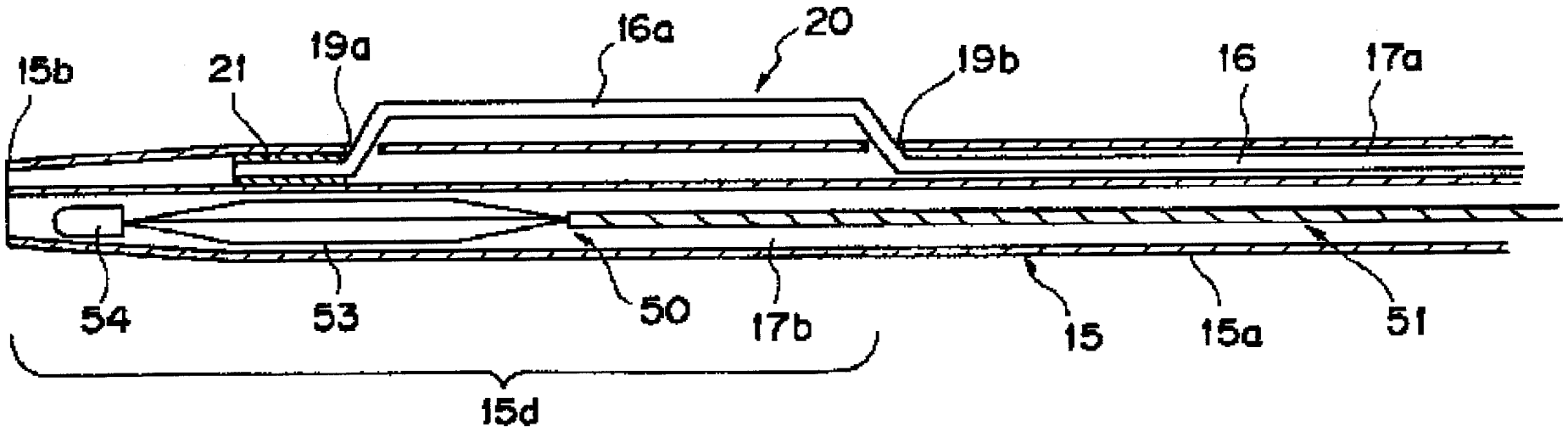

15b
15d
20
17d
18b
G
17b
15a
L2
G

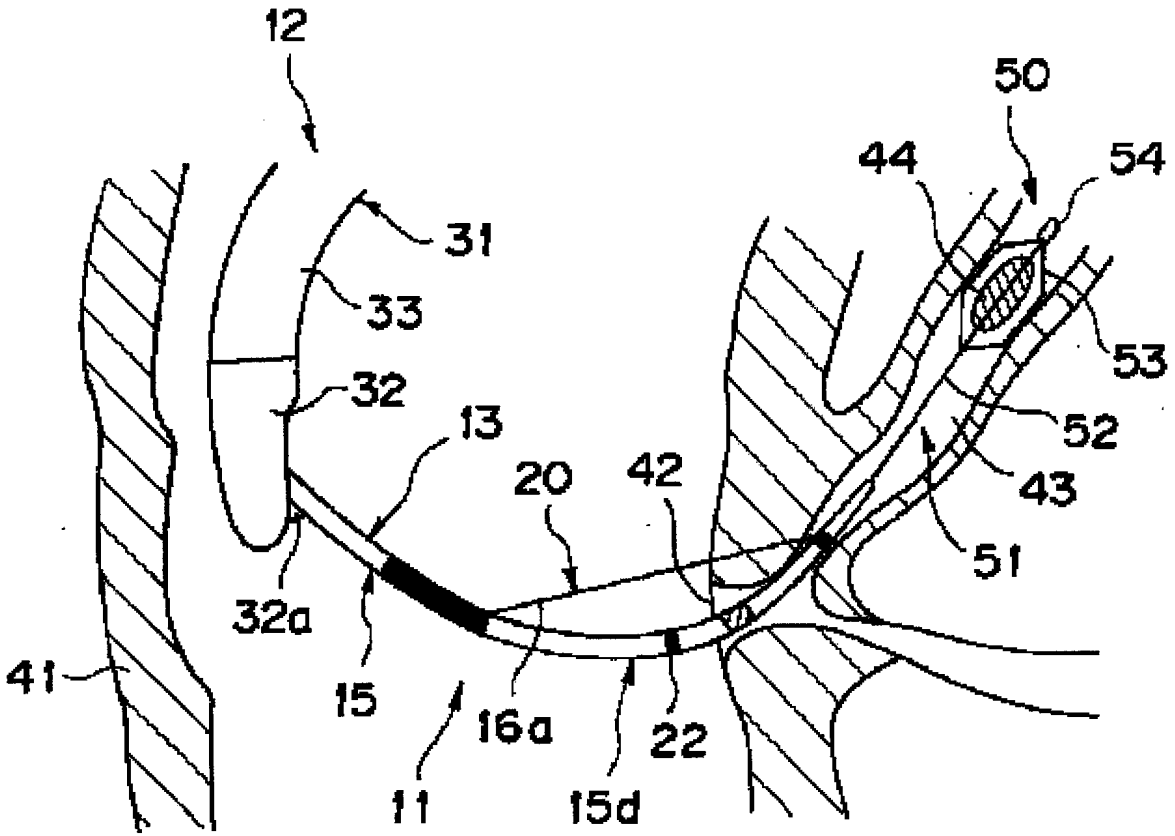

11'
53
20
16a
13
15
54
15d
50
24
27
14
23b
25
23
30
23a
23c
55
56
51

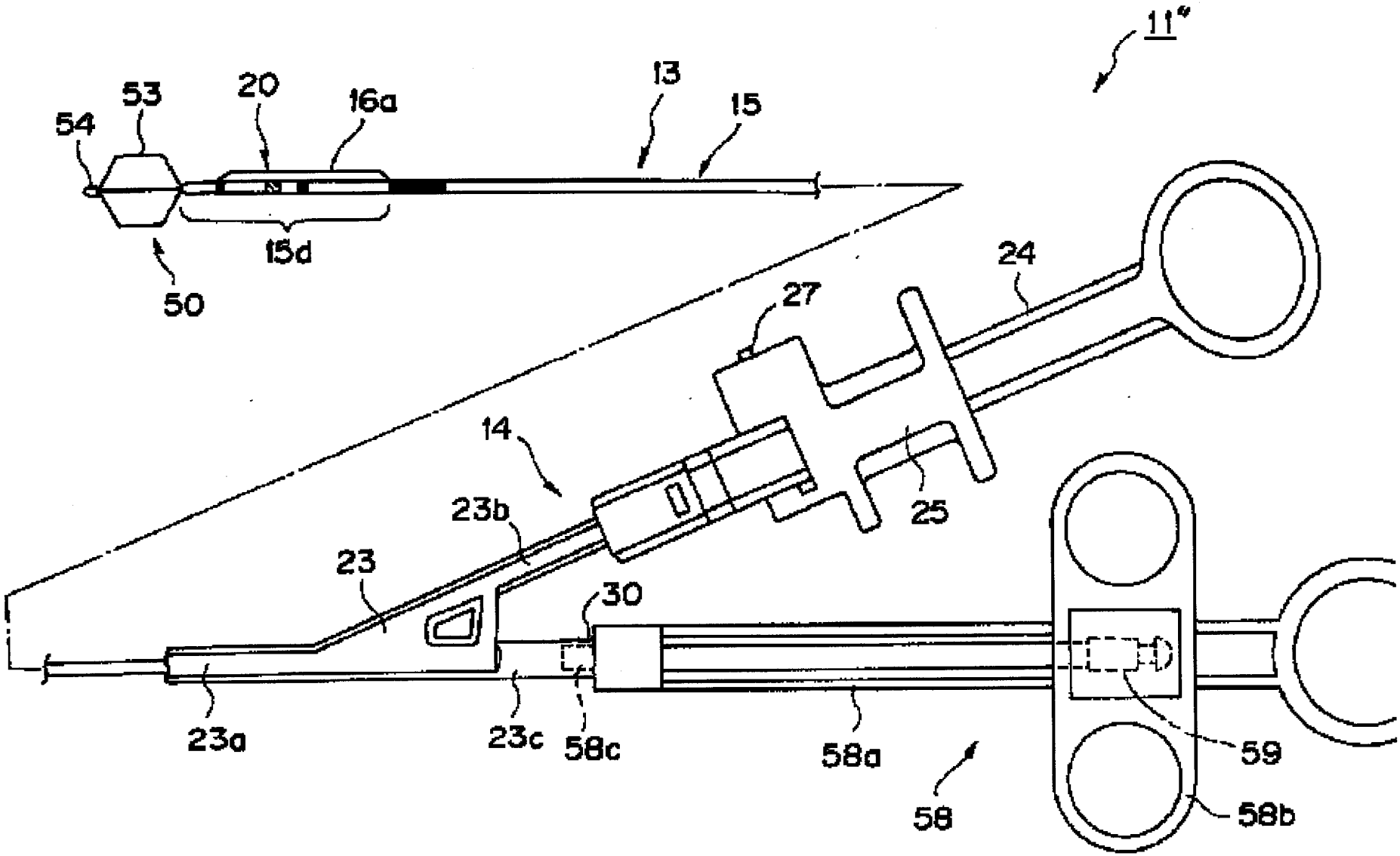
Drawing selection Drawing 18

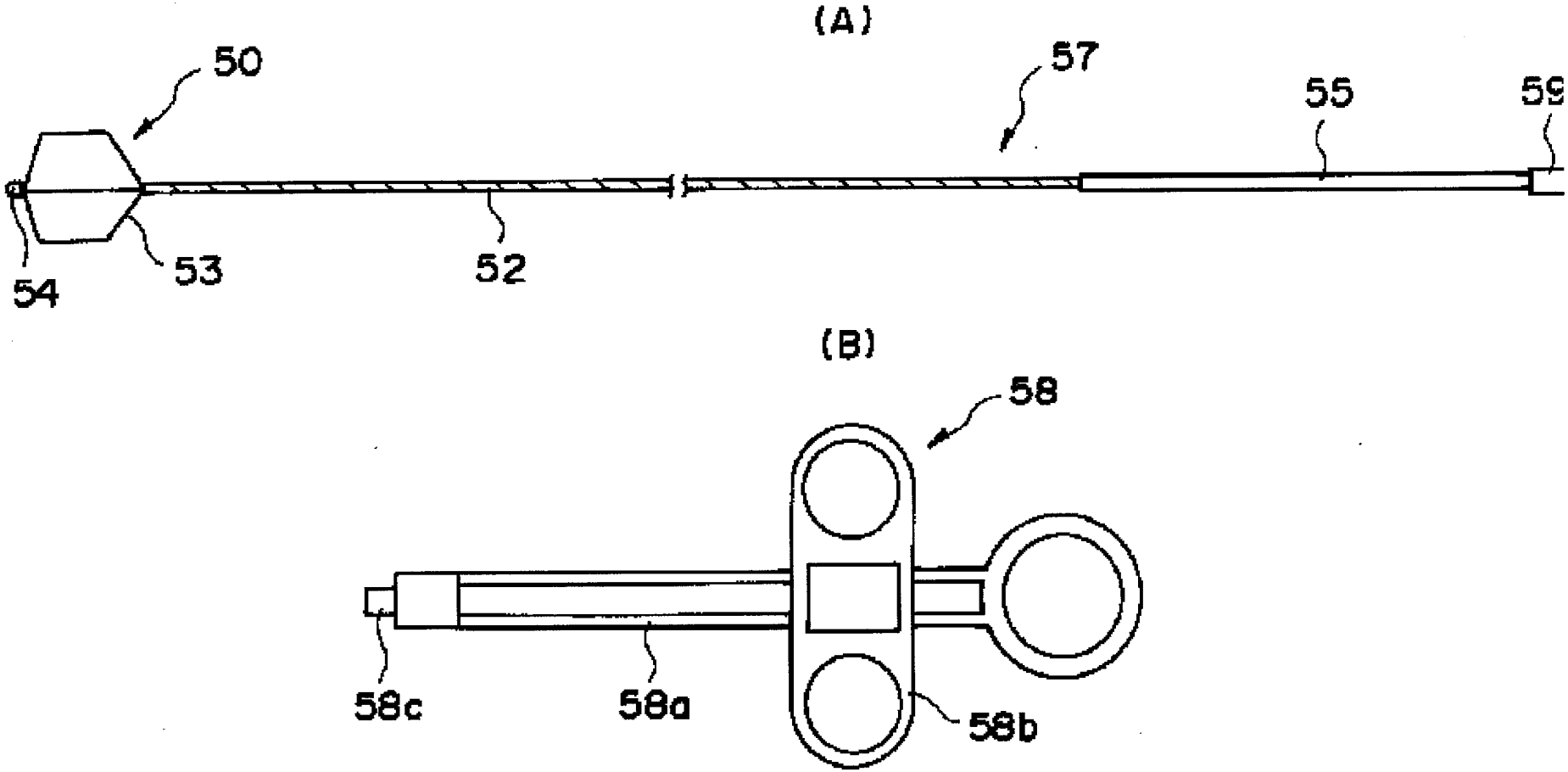


[Translation done.]

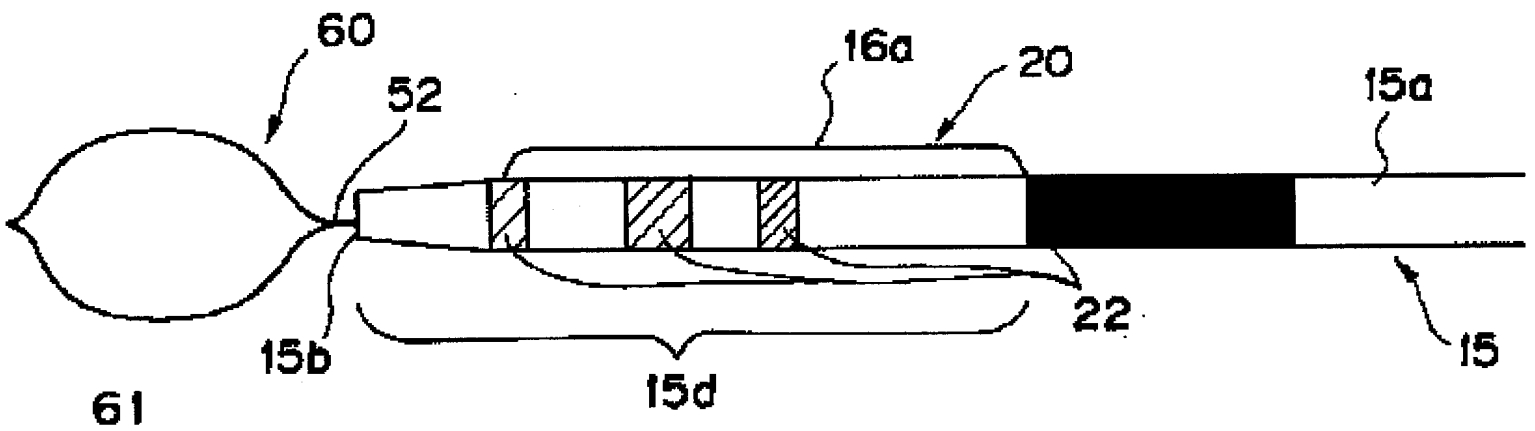

15b
21
19a
16a
20
19b
16
17a
54
53
50
17b
15
15a
51
15d


12
50
44
54
31
33
53
32
52
13
20
42
43
51
32a
41
15
16a
22
11
15d


11"
53
20
16a
13
15
54
15d
50
24
27
14
23b
25
23
30
23a
23c
58c
58a
59
58
58b


(A)
50
57
55
59
54
53
52
(B)
58
58c
58a
58b

(A)



(B)